

EXPERIMENTATION IN METHODS OF TEACHING
EDUCATIONAL PSYCHOLOGY
TO B.A.D. STUDENTS

(An Experimental Study on Lecture and Lecture-cum-
Discussion Methods)

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Dr. Julka was in overall charge of the project. He prepared the scheme of the study, supervised its different aspects and directed the evaluation of the project. He also wrote the report of the study. Messrs. S.P. Tulshreshtha and S.G. Bidawat worked as Senior Research Fellows. Shri S.P. Tulshreshtha worked for a period of one year and three months and Shri S.G. Bidawat for the remaining three months.

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Section-I.

THE DESIGN OF THE STUDY

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(A) The Problem:

During the post-independence period, the standards of education have gone down considerably and are falling further day by day. Concern over this fact has been expressed many times by the educationists, and they have often shown their anxiety and apprehension over the existing state of affairs. No doubt, some satisfaction has been expressed regarding the improvement of students' enrolment and the increase in the number of educational institutions during the period; but all this has been achieved at the cost of the fall of educational standards.

Both, the Secondary Education Commission and the National Education Commission, have rightly drawn our attention to the problem of falling standards and have sought its early solution. They have put forward several useful suggestions which if implemented in the right earnest, may lead towards the positive results. The Kothari Commission has suggested several elements which if properly attended will lead to the improvement of the standards. One of the important elements is related to "the extent and the quality of essential inputs, such as, teachers, curricula, methods of teaching and evaluation, equipment and building".¹

1. Report of the National Education Commission (1964-66).

In some states and certain universities, a few steps have been taken to improve the quality of teacher education its curricula and evaluation system. In the University of Rajasthan too, a new improved syllabus defining the objectives of each paper of the B.Ed. syllabus was introduced in the year 1968. The investigator working with this syllabus felt dissatisfied as it was not contributing substantially towards the improvement of the standards. It was felt that better results could be achieved, if along with the new curricula improved methods of teaching different subjects are introduced in the classes. Hence, the need for better and improved methods of teaching different subjects suited to the existing conditions of the training colleges was felt. It is the search for the better methodology of teaching with an ultimate aim of improving the standards that has led to the undertaking of the present investigation.

The research studies in other countries have brought into light several useful and effective methods of teaching in the colleges, such as, programmed instructions, team-teaching, micro-teaching, discussion, assignment and seminar methods etc. Researches on the lecture method of teaching, the only method employed in the present-day colleges, have already revealed several of its weaknesses. Under this method the learner remains inactive and this inactivity on the part of the learner restricts his progress and advancement in learning. Thus, there is an urgent need to find

out a more suitable method than the present one.

The question is, which method of teaching is most suitable under the prevailing conditions of the Indian Colleges of Education ? The investigators thought it proper to try out only those methods of teaching which are supposed to fit in well in the present-day conditions of our colleges and conduct experiments on them. Excepting the discussion method, no other new method could be tried out due to certain unavoidable difficulties. The methods which required extra material and more effort for their implementation and also which presented complete break from the traditional system could not be tried out because of many administrative difficulties involved. It was, thus, decided to carry out experimentation with that method only which suited to the routine of the institution and also enjoyed added advantages over the traditional lecture method without spending any extra time on it. It is with this background that the present research study was planned. The best substitute for the traditional lecture method was thought to be a combination of the lecture and the discussion methods. Thus, the topic selected for the present study was " Experimentation in methods of teaching in Training Colleges". The pin-pointed topic was " to study the relative effectiveness of the lecture method and the lecture-cum-discussion method of teaching Educational Psychology to B.Ed. students studying in the Training Colleges of the

University of Rajasthan.

(B) The Purpose:

The main purpose of the present investigation was to study the relative effectiveness of the lecture and the lecture-cum-discussion methods of teaching Educational Psychology, to B.Ed. students studying in the four selected Colleges of Education of the University of Rajasthan.

The study was also designed to realise the following sub-objectives :-

1) To study the difference between the gain in learning made by the students of average, above-average, and below-average intelligence when taught by the lecture and the lecture-cum-discussion methods.

2) To assess the difference between the learning of high (above) average and low (below-average) achievers when also taught by the two methods.

3) To construct an objective-type test of Psychology of Learning - the area of educational psychology which was covered under the experiment by the two different methods of teaching.

(C) Delimitations:

The study was delimited in terms of subject area and the sample :

1) The experiment was confined to the study of the unit of learning as prescribed in the B.Ed. syllabus of Educational Psychology of the University of Rajasthan. The following five sub-units were covered under the experimental teaching :

- (a) Meaning and nature of the process of learning.
- (b) Motivation for learning.
- (c) Transfer of learning
- (d) Reasoning and problem-solving.
- (e) Individual differences.

2) The time devoted to the two methods of teaching viz., the lecture method and the lecture-cum-discussion method was the same.

3) The same set of teachers taught the controlled and the experimental groups by the two methods.

4) Evaluation of the students' achievement was made with the help of a self constructed objective-type test of Psychology of Learning. Attempts to standardize it were not made.

5) In the sample, only 480 students of the B.Ed. class were chosen from four different Colleges of Education of the University of Rajasthan. The final number on the basis of which analysis was made and the conclusions

drawn was 320 only. One hundred and sixty students had to be excluded because some of them had left the college during the experimental period and for others complete data could not be obtained because of their absence from the classes.

6) The matching of the two groups was done by the comparison of frequency distribution related to relevant variables.

(D) The Plan of Attack:

The following steps were employed in the plan of attack of the study :-

- Study of the related literature.
- Selection of the sample and formation of Controlled and Experimental groups.
- Preparation of guide-line notes on the Unit of Learning.
- Selection of the cooperating lecturers and issue of instructions to them for teaching the two groups by the different methods.
- Construction of the Achievement Test.
- Administration of the Achievement Test at the pre-experiment stage.

- Beginning the Experiment, teaching the two groups by the two different methods.
- Observation of the classes from time to time.
- Assessment of the intelligence of the students included in the sample - administration of the two tests of intelligence.
- Administration of the Achievement Test at the post-experiment stage.
- Collection of students' achievement record from their University Final Examination.
- Conducting interviews of the cooperating lecturers.
- Analysis and interpretation of data.
- Drawing conclusions and writing the report.

(E) The Method:

The experimental method was employed to assess the relative effectiveness of the two methods of teaching.

(1) The Design of the Study:

The classical design of experimental method, that is, two groups pre-test, post-test experimental design was employed. The same experiment was repeated in four different colleges of Rajasthan University with the purpose to achieve control over the effect of certain extraneous factors. The experiment was delimited to the teaching of the area of learning only as prescribed in the B.Ed. syllabus of Educational Psychology of the University of Rajasthan.

(2) The Controlled and the Experimental Groups:

In each of the four colleges, two equivalent groups were selected for the purpose of the experiment. One group was treated as controlled group as it was taught by the traditional method i.e. the lecture method. The second group i.e. the experimental group was taught by the lecture-cum-discussion method. Each group was tested by an objective-type Achievement Test in the subject before and after the experiment. Equal amount of time was devoted for teaching by the two methods. Under the lecture method the teacher devoted the whole time of the period for lecturing. If any student raised a question during the teaching process, the teacher answered it in a nut-shell without entering into any discussion. He

neither encouraged the students to ask many questions nor he himself entered into any sort of discussion. Under the lecture-cum-discussion method the period was divided into two parts. In the first half of the period the teacher delivered a brief lecture on the topic eliciting only the bare essential points and in the second half he encouraged the students to ask as many questions as possible. He himself raised many issues encouraging the students to enter into discussion. The same teacher taught both the controlled and the experimental groups adopting different teaching methods in the two different classes. Selection of the teachers was made from the staff of the respective colleges where the experiment was organised keeping in mind the enthusiasm of the teacher to participate in the experimental work and the extent of cooperation extended by him voluntarily. These were teachers who had taught Educational Psychology to B.Ed. students for more than five years.

To bring uniformity of content to be taught and similarity of approach in teaching, some attempts were made by the investigators; firstly, detailed notes about the content were prepared by the researchers before hand which were distributed to the cooperating teachers quite in advance. Sufficient time was given to

them for the study of these content notes; secondly, to see whether the teachers follow the two methods sincerely the researcher supervised their classes from time to time and checked that in the two different classes the different methods were employed rightly. Any deviation from the prescribed procedure was pointed out to the concerned teacher immediately after the class so that it might not be repeated again.

The following table presents the Experimental Design at a glance :

Table 1.1 : Showing the Experimental Design Employed in the Study.

| | Controlled Group (N=160) | Experimental Group (N=160) |
|--|---|--|
| Pre-Test: | Objective-type test on the Psychology of Learning was administered. | Objective-type test on the Psychology of Learning was administered. |
| Treatment: | Unit of learning was taught by merely LECTURE method. | Unit of learning was taught by LECTURE-Cum-DISCUSSION method. |
| Post-Test: | The same objective-type test on the Psychology of Learning was administered. | The same objective-type test on the Psychology of Learning was administered. |
| Gain : | Gain made from the pretest to the post-test conditions was noted. | Gain made from the pretest to the post-test conditions was noted. |
| <u>Comparative Study of the Gains:</u> | To study the relative effectiveness of the two methods of teaching, a comparative study of the GAINS under two conditions was made. | |

(F) The Population and the Sample:

The experiment was carried out in only four Colleges of Education out of the twelve colleges affiliated to the University of Rajasthan. The selection of these colleges was done on the basis of the cooperation received from the staff of these colleges and the facilities available there. One college was selected out of the two Government Colleges of Education and another one from the two aided colleges and the rest two from the eight unaided colleges. In each of these colleges, only two groups of about sixty students each were selected for the purpose of experimentation. These two groups were selected right in the beginning of the academic session at the time of admissions. In forming these groups, the methods of randomization and the matching by frequency distribution were employed. The list of students on college rolls was prepared according to the alphabetic order in each college. The first sixty students were included in the Controlled Group and the rest of the sixty students were placed in the Experimental Group.

The names of the four colleges where the experiment was conducted are as below :-

- (1) Government T.T. College, Bikaner.

- (2) Basic T.T. College, Gandhi Vidya Mandir, Sardarshahr.
- (3) Jialal Institute of Education, Ajmer.
- (4) Shri Gandhi T.T. College, Gulabpura.

The two groups were compared statistically with regard to certain important variables which could influence the results of the experiment either way. The composition of the sample with its position regarding some relevant variables is shown in Table 1.2 to 1.4

Table 1.2 : Number of Students included in the Sample from the four Colleges

| Institutions. | Students selected at the Beginning of the Experiment. | | Students available at the end of the Experiment. | |
|--|---|------------|--|-------------|
| | Cont. Group | Exp. Group | Cont. Group | Exp. Group. |
| Govt. T.T. College, Bikaner. | 60 | 60 | 40 | 40 |
| Basic T.T. College Sardarshahr. | 60 | 60 | 40 | 40 |
| Jialal Institute of Education, Ajmer. | 60 | 60 | 40 | 40 |
| Gandhi T.T. College, Gulabpura | 60 | 60 | 40 | 40 |
| Total | 240 | 240 | 160 | 160 |

Note : To facilitate calculations, number in each group was kept constant.

The number of students in each college was reduced from 60 to 40. Table 1.2 shows that in the beginning 60 students in each group were selected from each of the four colleges. That means in all 240 students were selected in the Controlled Group and 240 in the Experimental Group. Some students had to be dropped out from the sample because either they had left the college or complete data were not available about them at the time of the final testing. For drawing out conclusions forty students from each group and from each of the four colleges were retained. In the final sample 160 students were in the Controlled Group and 160 in the Experimental Group. To facilitate computational work and easy comparisons a constant number i.e. forty in each group was kept. If in any group there were more than forty students about whom complete data were available, the excess number was dropped out by the lottery method.

Table 1.3 shows the structure of the sample related to the variable of sex, age, educational qualifications and teaching experiences of the teachers.

Table 1.3 : Sex, Age, Educational Qualifications and Teaching Experience of students in the Sample.

[illegible]

Age:

[illegible]

Educational
Qualifications:

[illegible]

Teaching
Experience:

Table 1.3 (Contd.)

| Variables | Govt. T.T. College, Bikaner | | Basic T.T. College, Sardarshahr | | Jialal Inst. of Education, Ajmer. | | Gandhi T.T. College, Gulabpura | |
|-----------|-----------------------------------|-------|---------------------------------------|-------|---|-------|--------------------------------------|-------|
| | Cont. | Exp. | Cont. | Exp. | Cont. | Exp. | Cont. | Exp. |
| | Group | Group | Group | Group | Group | Group | Group | Group |

Teaching Experience:

| | | | | | | | | |
|---------------|----|----|----|----|----|----|----|----|
| No Experience | 7 | 4 | 6 | 9 | 12 | 16 | 22 | 21 |
| 1 - 6 years | 1 | 1 | 12 | 10 | 3 | 5 | 6 | 9 |
| 7 -12 years | 11 | 11 | 19 | 18 | 20 | 17 | 10 | 7 |
| 13 -18 years | 16 | 18 | 3 | 2 | 3 | 2 | 2 | 3 |
| 19 and above | 5 | 6 | 0 | 1 | 2 | 0 | 0 | 0 |
| Total | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 |

To study the effect of extraneous factors, such as sex, age, educational qualifications and teaching experience of the student-teachers included in the sample, statistical comparisons were made on the basis of the data obtained from the two groups. The following table presents the relative statistics.

Table 1.4 : Comparative Study of the Statistics of the two groups regarding the Variables of Sex, Age, Educational Qualifications and Teaching Experience.

| | Controlled Group | Experimental Group |
|------------------------------------|---------------------|-----------------------|
| <u>Sex:</u> | | |
| Male Teachers | 132 | 132 |
| Female Teachers | 28 | 28 |
| <u>Age:</u> | | |
| Mean | 28.6 | 28.2 |
| S.D. | 7.15 | 5.70 |
| <u>Educational Qualifications:</u> | | |
| Graduates | 104 | 100 |
| Graduates with S.T.C. | 13 | 25 |

Table 1.4 (Contd.)

| | Controlled Group | Experimental Group |
|-----------------------------|---------------------|-----------------------|
| Post-Graduates | 39 | 32 |
| Post-Graduates with S.T.C. | 4 | 2 |
| <u>Teaching Experience:</u> | | |
| Mean | 6.26 yrs. | 6.56 yrs. |
| S.D. | 7.2 | 7.26 |

From the above table it is evident that the representation of Male and Female student-teachers in the two groups was completely equal. There was negligible difference in the mean ages of the two groups. There was slightly larger number of S.T.C. Trained student-teachers in the Experimental Group, whereas the Controlled Group was comprised of slightly more untrained student-teachers. With regard to the teaching experience of the student-teachers, the means of the two groups were nearly equal and there was no significant difference between them.

(G) Tools and Techniques Employed:

The following tools and techniques were employed in the present study :-

1. Achievement Test in Psychology of Learning:

The investigators themselves constructed an objective-type test in Psychology of Learning for the purpose of

Assessing students' gains as a result of different treatments given to them under the experiment. The purpose of the test was to measure achievement of the students both at the pre-experiment and post-experiment stages in the Unit covered. The various steps employed are as follows :-

(a) Deciding about the Purpose
and the Nature of the Test:

The new test was designed in such a way that various objectives of teaching Educational Psychology to B.Ed. students may be tested in an objective manner. The test included objective-type items. Almost all the items were of multiple choice type. The language used was Hindi as all the students to be tested had opted for Hindi medium for their B.Ed. Examination.

(b) Writing the Objectives:

Keeping in mind the objectives of teaching Educational Psychology as given in the University syllabus the objectives of the test proper were prepared. The objectives laid down for the construction of the test are as below :-

(i) Knowledge : The objective of knowledge was defined as the recall of specifics and universals, the recall of methods and processes or the recall of a

pattern structure or setting. This objective included mostly the psychological process of remembering.

(ii) Understanding.

(iii) Application.

(c) Deciding Weightage for the
Content of the Unit:

How much weightage is to be given to each aspect of the content was decided before hand. Important aspects of the Unit were given more weightage than the less important ones. Help in this respect was sought from experienced teachers of the subject. Below is given the content analysis of the Unit and the number of items included for each objective in the test.

Table 1.5 : Weightage given to various aspects
of the Content and various objectives.

| Content | O B J E C T I V E S | | | Total |
|---------------------------------|---------------------|---------------|-------------|-------|
| | Knowledge | Understanding | Application | |
| Nature and process of Learning. | 11 | 13 | 7 | 31 |
| Motivation in Learning. | 15 | 7 | 7 | 29 |
| Transfer of Learning. | 6 | 3 | 0 | 9 |
| Reasoning & Problem-solving | 12 | 5 | 5 | 22 |
| Individual Differences | 4 | 3 | 2 | 9 |
| Total | 48 | 31 | 21 | 100 |

It is evident from the above table that a little less than 50 percent of the items in the test were related to the objective of Knowledge and about 30 percent and 20 percent tested the objectives of Understanding and Application of knowledge respectively. A little more emphasis was given to the Knowledge aspect due to ease in the construction of this type of items and also the tendency on the part of the teachers to give more importance in his teaching on this aspect.

(d) Writing the Items:

Items were written on the basis of the analysis of the subject-matter. Teaching notes prepared for the guidance of the cooperating lecturers proved to be much beneficial. Thorough knowledge and understanding of the subject-matter facilitated in this work. Some items were borrowed from the Mouly and Walton's² book on Test Items in Education. As the book was in English, the items were translated into Hindi and then adopted in the Test. While writing and selecting the items, the attainment level of the B.Ed. students was kept in mind. In the first instance 150 items were written.

2. Mouly, G.J. and Walton, L.E., Schaum's Outline of Test Items in Education. N.Y., Schaum Publishing Company. 1962.

(e) Nature of the Test Items:

All the items were of multiple choice type. This type was chosen because it was considered to be the best type for measuring various aspects of students' academic attainment. Multiple choice type items are not only helpful in testing memory but measures higher mental processes also, such as, drawing inferences and making discrimination. This type hardly leaves any chance for guess work and provides greater test reliability. Each item included a suitable stem which presented a problem or posed a query. The number of distractors for each item were four or five.

(f) Reviewing the Test Items:

The preliminary draft of the test was drawn and given to two experienced teachers of Educational Psychology for review with regard to suitability of content and the formation of the items. These experienced teachers were expert in their field and possessed the experience of teaching the subject to B.Ed. for the last eight years. Each of the item in the test was considered by them one by one. They reviewed it from the point of view of language, structure of the stem, suitability of the distractors etc. They also considered the various objectives, the content and the weightage given to them.

An experienced Hindi teacher was also consulted for considering the suitability of language of the test. In the light of the suggestions received, the draft was revised. Certain items were reframed and in some cases only a few words were replaced.

(g) Drafting the Instructions:

Instructions for the administration of the test were drafted. General and specific instructions were given separately. Specific instructions were related to the nature of the test and the manner of answering the items. This was done for adopting uniform system of the test administration.

(h) Deciding about the Method of Scoring:

After deciding about the correct and best answer for each item, which was done in consultation with the experts, a Scoring Key was prepared for the Test. The Key presented only the best answer. One mark was awarded for each correct answer. The total number of correct answers given by a subject showed his total score on the test.

(i) Try-Out:

The try-out of the test was done on full one section of B.Ed. class of Sardarshahr Training College

which was comprised of 60 students. These were the students who were not included either in the Controlled or the Experimental groups. During the try-out, difficulties experienced by the students with regard to language, instructions etc. were noted. The time-limit was also ascertained.

(j) Revising the Test Items:

In the light of the try-out and the responses given by the high and low groups, some items were dropped and some were rewritten. At this stage, out of 150, only 100 items were retained. And, thus, the final form of the test was prepared.

(k) Validity of the Test:

The following steps were taken to ensure the validity of the test :-

(i) An attempt to frame the questions in simple, clear and unambiguous language was made. Questions causing slight amount of ambiguity were rejected.

(ii) Help of the experts at various steps of the test construction was sought. They examined the content systematically, judged the suitability of the stem and its distractors and decided about the weightage to be given to each objective and the content area etc. This

ensured a fair representation of the item sample from the item parametre.

(iii) At each step of the test construction, care was taken to maintain objectivity.

(1) Reliability of the Test:

The reliability of the test was calculated by the method of rational equivalence. For this purpose, Kudar-Richardson formula No.20 was employed. The calculated coefficient of Reliability was found to be .75 which is within the expected limits. The formula employed is given below :-

9

n = number of items in the test.

P = proportion of correct responses to each item.

$q = (1-P)$

(m) Calculation of Local Norms:

For the purpose of interpretation of the test results and the comparison of the two groups, local norms were calculated. Frequency distributions of the students' achievement scores at the post-experiment stage were prepared and these were plotted^t on a graph and the Stanine Values were read from it.

2. Two Intelligence Tests:

To have an adequate estimate of students' intelligence, two tests of intelligence - one verbal and the other non-verbal - were employed. These tests were :-

- (a) Reven's Progressive Matrices.
- (b) Adult Intelligence Test
by Dr. Sherry.

Local norms for each of these tests were calculated. By using these norms high, low and average intelligence groups of student-teachers were identified.

3. Interview Technique:

To gather the impressions of the cooperating teachers, their interviews were conducted with the help of an Interview-schedule. Their frank opinion was sought regarding their experiences in the experiment. The points covered in the interview are as below :-

- (a) Teachers preparation for teaching the
Controlled and Experimental groups.
- (b) Suitability and usefulness of teaching
notes supplied to them.
- (c) Teachers observations in the class-
room while teaching the two groups.

- (d) Practicability of the two methods.
- (e) Teacher's General opinion about the experiment.
- (f) His feelings after the teaching.
- (g) Students' feeling as recorded by them.
- (h) Suggestions for improvement and further research.

4. Observations:

To see whether the cooperating teachers follow the two methods rightly, the research fellow visited their classes off and on. He used to sit in the class on the back-benches and record any deviations from the method. If there was any deviation that was pointed out to the teacher concerned immediately after the class so that it might not be repeated again.

(H) The Validity and Reliability of Data:

The validity and reliability of the conclusions drawn in this study about the relative effectiveness of the two methods of teaching employed in the experiment, depends much upon the reliability and validity of the tools and techniques and that of the data collected.

The question of reliability and validity of the

achievement test of Psychology of Learning has already been discussed earlier in this Section. To ensure the validity and reliability of the rest of the tools and technique, the following precautions were adopted :-

(1) Local norms were calculated for interpreting the results of the two tests of intelligence. Different intelligence and achievement groups were identified by using local norms only.

(2) Structured interviews were conducted. For this purpose an interview-schedule comprising of pre-prepared questions was utilised.

(3) Observation of the classes was made with the purpose to ensure uniformity in teaching and strict adherence to the methods employed.

(4) Help in the construction of the tools was sought from experts in the field.

(5) To find out whether the tests and schedules worked properly and met the objectives of the study correctly, the tools were pretested carefully on the type of people included in the sample.

(6) The field investigator received comprehensive training in the use of all the tools and techniques.

(7) To get reliable data, the tools and techniques

were used in a congenial atmosphere. Undue hurry on the part of the field investigators was avoided. The data were collected in a normal class-room situation.

(I) Tabulation of Data:

The Achievement Test responses were scored on the basis of the correct response. In the multiple choice items, only one response was accepted as the correct response. A scoring-key of all the correct responses for all the questions in the test was developed by the investigators in consultation with the other experienced teachers of the subject. One mark for each correct response was awarded. The maximum marks obtained on the total test was 100.

The intelligence tests were scored with the help of the scoring keys provided by the test-constructors for the purpose. The score of each student-teacher on each of these tests was converted into stanine scores which were calculated on the basis of local norms developed by the investigators themselves. The median stanine score of the subject on the two intelligence tests administered on him, was taken as his final intelligence score. The subjects obtaining median scores of VII stanine or more and III stanine or less were included in the above-average and below-average intelligence groups. Those subjects

whose median score fall within IV and VI stanine were placed in the average intelligence group.

The scholastic achievement data were recorded from the college records. The basis was the student-teachers performance in the final University examination in the subject of Psychology. Stanine norms were also calculated on the basis of University examination result. The students were categorised as high, average and low achievers on the basis of stanine cut scores which were from I to III, IV to VI and VII to X for the above mentioned groups respectively.

The content analysis of the interview and observation data was carried out. For this purpose, appropriate categories were developed under which the whole data were grouped and presented in this report.

(J) Statistical Techniques Employed:

Tests of Significance: Statistical differences between the scores of the Controlled and Experimental groups from their performance on the pre-test and post-test were worked out and studied for investigating the shifts. The change in scores was tabulated for different groups i.e. the Controlled and Experimental, different intelligence groups and different achievement groups.

Statistical tests of significance were worked out

to determine whether observed differences could be caused by the element of chance. Absolute differences in the change in scores in the case of different groups do not necessarily point out at real differences in them. Differences in them might be due to chance factor only. Only when a difference is found to be statistically significant, can it be ascribed to the operation of factors other than chance i.e. the experimentally tested factors. For this purpose, 't' + 'F' tests of significance were employed. The significance of difference between the mean gains made by the controlled and the experimental groups from pretest to post-test stages was made with the help of 't' test. The comparisons of the gains made by different intelligence and achievement groups were made by the 'F' test by carrying out analysis of variance calculations.

Section-II

ANALYSIS AND INTERPRETATION OF DATA. -----

In the previous part of this report, the design of the study has been presented in detail. It describes the purpose, the method, the sample, the tools and the techniques of the study etc. More specifically, it gives in detail the design of the experiments conducted to study the relative effectiveness of the lecture method and the lecture-cum-discussion method of teaching Educational Psychology to the B.Ed. students studying in four colleges of education of the Rajasthan University.

The most pertinent questions which the present study aimed to answer were :-

(1) Is there any added advantage in teaching educational psychology to B.Ed. students by the lecture-cum-discussion method over the simple lecture method when the same teacher teaches in two different classes by the two methods and by devoting equal amount of time on them ?

(2) Which of the three intelligence groups - the above-average intelligence, the average intelligence and the below-average intelligence - was benefitted the most when they studied by the lecture and the lecture-cum-

discussion methods ?

(3) Was there any significant difference between the attainment of the students of achievement groups - the above-average, the average and the below-average - when they studied by the two different methods ?

(4) How did the teachers and students feel while teaching or studying by the two different methods ? What were their reactions to these methods ?

(5) Lastly, what suggestions did they put forward regarding the improvement in the two methods of teaching on which the experiments were made in the present study.

As already mentioned, the experiments were conducted in four different Colleges of Education of the University of Rajasthan. The experimental ^{Method} before and after controlled and experimental group design, was employed in the study. Teaching of only the unit of learning from the B.Ed. syllabus of the subject - Educational Psychology - was done. Achievement of the students was tested by an objective-type test. The same test was used at before and after stages of the experiment.

The gains of the students in each of the colleges were noted separately for the controlled and the experimental groups. The data were statistically manipulated and differences were studied.

The present portion of the report deals with the analysis of data. It presents both the quantitative and the qualitative manipulations of the data gathered from the four colleges where the experiments were conducted.

The assessment of the gains made by the controlled and the experimental groups in the four colleges was made separately with the help of the calculation of relevant statistics, such as, the mean, the standard deviation, the standard error of the mean, the difference between the means and the standard error of the difference between the means. To make a comparative study of the gains 't' values on the basis of the difference between the means and the standard error of difference were computed.

The analysis of the data from each college and the inferences drawn from them are presented below :-

(A) A Study of the Impact of Treatments
on the Control and the Experimental Group:

(1) The Assessment of Shifts:

The mean scores of the controlled and the experimental groups in each of the four colleges for the pretest and post-test were compared. The percentages of the gains were also calculated.

(2) The Control Group Shifts:

The gains in scores of the students of the controlled group from pretest to post-test stages may be attributed to the learning by the lecture method. There is every possibility that these gains also include the impact of learning from other sources such as books and discussions with friends. Some gain may have resulted from curiosity aroused by the pretest or from the educative value of the test itself.

The results of pretest and post-test stages of the Controlled group in the four colleges are presented below in Table 2.1

Table 2.1 : Control Group - Mean score, mean Gain and Significance of Gain.

| College | M E A N | | Gain | Percent of Gain | t | Level of Significance |
|-------------|----------|-----------|------|-----------------|------|-----------------------|
| | Pre-Test | Post-Test | | | | |
| Ajmer | 40.6 | 47.5 | 6.9 | 16.9 | 4.13 | .01 |
| Bikaner | 34.9 | 39.0 | 4.1 | 11.7 | 1.97 | N.S. |
| Gulabpura | 36.7 | 45.0 | 8.3 | 22.6 | 2.75 | .01 |
| Sardarshahr | 36.1 | 43.9 | 7.8 | 21.3 | 4.75 | .01 |

Note : (1) In each college, N was 40.

(2) The colleges in the tables have been identified from the place of their location rather than from their actual names.

The above table shows that excepting the Bikaner College, in all the other three colleges the students of Controlled group made significant gains in their mean scores from pretest to post-test stages. The highest percentage of gain (22.6%) was made by the students of Gulabpura College. The lowest percent of gain (11.7%) was noted in the case of Bikaner College students. Though the mean gain of the Bikaner College is insignificant but it is equal to 4.1 which is nearing the significance value at .05 level. From the study of the gain by the Control group who studied by the traditional lecture method from the pretest to post-test stages, it can be easily inferred that the lecture method is an effective method as far as the attainment of the students in the subject is concerned. It may also be noted that insignificant gain made by the students of a college i.e. Bikaner College, is a Government institution, whereas the rest of the three institutions are privately run colleges.

It may also be kept in mind that the gains also include the learning of the students from other sources such as library study, study of books at home and discussion by the students among themselves in the hostile. Gulabpura and Sardarshahr who made a high degree of gains i.e. 22.6 and 21.3 percent respectively are residential colleges and the colleges of Ajmer and

Bikaner whose students made 16.9 and 11.7 percent gains are non-residential type institutions. The students in the later colleges did not get opportunity to live together and discuss things among themselves.

(3) The Experimental Group Shifts:

The students of the experimental groups in all the four colleges learnt by the lecture-cum-discussion method which involved the devotion of about fifty percent of the class-room study time for brief, preplanned and systematic lecturing and the rest of the fifty percent of the time for discussion in a large group. The students achievement of these groups may be ascertained to the new approach employed for teaching.

The gains made by the students of the Experimental groups in the four colleges are shown below in Table 2.2 alongwith the relevant statistics :-

Table 2.2 : Experimental Group - Mean score,
Mean Gain and Significance of Gain.

| College | M E A N | | Percent of Gain | t' | Level of Significance | |
|-------------|---------|-----------|--------------------|----|--------------------------|-----|
| | Pretest | Post-Test | | | | |
| Ajmer | 36.0 | 40.9 | 4.9 | 14 | 2.57 | .05 |
| Bikaner | 34.5 | 39.75 | 5.25 | 15 | 2.79 | .01 |
| Gulabpura | 34.4 | 40.0 | 5.6 | 16 | 3.01 | .01 |
| Sardarshahr | 33.9 | 43.6 | 9.7 | 29 | 5.74 | .01 |

Note : N in each college was 40.

From the above table, it is evident that the mean scores of the students of all the experimental groups in the four colleges have increased significantly. The highest gain was shown by the students of Sardarshahr College (29%) and the next in order came Gulabpura, Bikaner and Ajmer colleges which showed 16, 15, 14 percent gains respectively.

Sardarshahr is the College to which the principal investigator and the Senior Research Fellows belonged. During the experimental period, the principal investigator was present in the College and from time to time and regularly he ascertained that the experimental method is strictly adopted in the class of the experimental group. He frequently checked the classes and observed the cooperating teacher carrying out the plan rightly. In the rest of the three colleges, the percent gains, no doubt, are significant, but they are not as high as that of the Sardarshahr College students. As these colleges were situated at distance places, strict observation of the classes was not possible. As the experiments were conducted simultaneously in all the colleges, the Senior Research Fellow could not be present all the time in these colleges for observation purposes. The cooperating teachers in these three colleges were given instructions in detail and then were left free to carry out the experiment of their own accord. However, the Senior

Research Fellow visited these colleges occasionally and observed the classes. Sometimes when he observed any deviation from the experimental procedure, he pointed it out to the teacher concerned. It was noted from the reactions of the students that teachers in these colleges often resorted to long lecturing as it was difficult for them to leave their previous habit and very little time was devoted for discussion.

From the data presented in Table 2.2, it can be inferred that the lecture-cum-discussion is also an effective method as far as the students learning is concerned. Dividing the teaching period into two halves and devoting the first half to brief lecturing and the second half to discussion is in no way an inferior method of teaching. A significant observation from the above table is that in the college where the experimental procedure was strictly adhered to, the gains are very large in comparison to the colleges where controls could not be enforced so rigidly.

(4) Comparison of Control and Experimental Group Gains in Different Colleges:

From the previous discussion, it is evident that both the groups - the controlled and the experimental - gained from the pretest to post-test learning. Now the question arises, which of the two groups made comparatively

more gains ? As the experiment was carried out in four different colleges, it was thought proper to study the data gathered from these colleges, firstly college-wise and then collectively.

Tables 2.3 to 2.7 show the data related to the gains of the two groups from each of the four colleges included in the present study. The discussion on the data has been given at the end of each table.

Table 2.3 : Gains by the Controlled and Experimental Groups from Pretest to Post-test in Jialal College of Education, Ajmer.

| | <u>*Controlled Group</u> | | <u>*Experimental Group</u> | |
|-----------------------|--------------------------|-----------|----------------------------|-----------|
| | Pretest | Post-Test | Pretest | Post-Test |
| N | 40 | 40 | 40 | 40 |
| Mean | 40.6 | 47.5 | 36.0 | 40.88 |
| S.D. | 7.0 | 7.75 | 8.15 | 8.30 |
| S.E.M | 1.12 | 1.24 | 1.30 | 1.33 |
| Diff M_1-M_2 | | 6.9 | | 4.88 |
| S.E.D | | 1.67 | | 1.86 |
| 't' | | 4.13 | | 2.57 |
| Level of Significance | | .01 | | .05 |
| Percent of Gain | | 16.9% | | 14% |

Note : CONTROLLED Group is comprised of the student who studied by Lecture method.

EXPERIMENTAL Group is comprised of the students who studied by Lecture-cum-Discussion method.

The above table shows that the students of Controlled group who studied by lecture method made a gain of 6.9 in their mean scores from pretest to post-test situations, whereas the students of experimental group who studied by the lecture-cum-discussion method made a gain of 4.88 only in their mean scores from pretest to post-test when the 't' values for both the groups were calculated they were found to be 4.13 for Controlled group and 2.57 for the experimental group. Both these values are significant at .01 and .05 levels respectively. This means that both the controlled and the experimental groups have made the substantial gains from pretest to post-test as a result of teaching by the two methods. Both these methods seem to be quite effective as far as the gain of the students with regard to their knowledge, understanding and application of knowledge is concerned.

Looking at the percent gain by the two groups, it can be said that the controlled group made a gain of 17 percent whereas the experimental group made a gain of only 14 percent. It means that in Jialal Institute of Education, the students of controlled group were more benefitted than the students of experimental group. Hence, it can be inferred that lecture method is slightly more effective than the lecture-cum-discussion method.

Let us see what happened in the case of the experiment replicated in the Government T.T. College, Bikaner, where an experienced teacher taught the two groups. The results of this College are presented in Table 2.4

Table 2.4 : Gains by the Controlled and Experimental Groups from Pretest to Post-Test in Government T.T. College, Bikaner.

| | <u>Controlled Group</u> | | <u>Experimental Group</u> | |
|-----------------------|-------------------------|-----------------|---------------------------|-----------|
| | Pretest | Post-test | Pretest | Post-test |
| N | 40 | 40 | 40 | 40 |
| Mean | 34.87 | 39.0 | 34.5 | 39.75 |
| S.D. | 8.9 | 9.65 | 8.65 | 8.0 |
| S.E.M | 1.42 | 1.54 | 1.38 | 1.28 |
| D $M_1 - M_2$ | 4. | 4.13 | | 5.25 |
| S.E.D | | 2.09 | | 1.88 |
| 't' | | 1.97 | | 2.79 |
| Level of significance | | Not significant | | .01 |
| Percent of Gain | | 11.7% | | 15% |

Note: CONTROLLED group includes students who studied by the Lecture method.

EXPERIMENTAL group includes students who studied by Lecture-cum-Discussion method.

The above table shows that in the Government T.T. College, Bikaner, the controlled group students made a gain of 4.13 in their mean scores from pretest to post-test situations, whereas the students of the experimental group made a gain of 5.25 in their means. The 't' value for the Controlled group calculated on the basis of their pretest and post-test scores is only 1.97. This value is insignificant because the value required to be significant for 39 degree of freedom is 2.022. In the case of experimental group the 't' value of 2.97 is significant at .01 level. This means that learning by lecture-cum-discussion method results into significant gains, whereas the lecture method does not show any significant effect in this respect. The results of the study in the previous college had shown that both the methods are quite effective whereas study in this college exhibits the superiority of lecture-cum-discussion method in comparison to the lecture method only. The percent gains in means from pretest to post-test by the Controlled and the Experimental groups are 12 percent and 15 percent respectively.

In the first college, that is, Jialal of Institute of Education, Ajmer, the lecture method was found to be better than the lecture-cum-discussion method, though both the methods were found to be effective. In the second college, that is, Government T.T. College,

Bikaner, the lecture-cum-discussion method was found to be superior in comparison to the mere lecture method. In the later college, students of Controlled group even failed to make significant gains. Probably, the success of a method depends upon the attitude and ability of a teacher to carry out a particular method successfully. The cooperating teacher of the later college was an experienced teacher with a favourable attitude towards teaching through discussion method. This might be the reason of the difference of gains by the two groups in this college.

In Table 2.5 is presented the result of the experiment carried out at a newly established college where a young enthusiastic teacher was incharge of teaching the two groups. Though the teacher of this college was a little less experienced but he extended whole-hearted cooperation in the present study. He taught the two groups sincerely. Let us study the results of the experiment in this college.

Table 2.5 : Gains by the Controlled and the Experimental Groups from Pretest to Post-test in Gandhi T.T. College, Gulabpura.

| | Controlled Group | | Experimental Group | |
|-----------------------|------------------|-----------|--------------------|-----------|
| | Pretest | Post-test | Pretest | Post-test |
| N | 40 | 40 | 40 | 40 |
| Mean | 36.75 | 45.0 | 34.4 | 40.0 |
| S.D. | 7.1 | 10.0 | 5.9 | 10.1 |
| S.E.M | 1.13 | 1.6 | 0.94 | 1.61 |
| D $M_1 - M_2$ | | 8.25 | | 5.6 |
| S.E.D | | 2.96 | | 1.86 |
| 't' | | 2.75 | | 3.01 |
| Level of significance | | .01 | | .01 |
| Percent of Gain | | 21.8% | | 16.0% |

Note:

- CONTROLLED group means those students who studied by Lecture method.
- EXPERIMENTAL group means those students who studied by Lecture-cum-discussion method.

The above table shows that the Controlled group made a gain of 8.5 in its mean scores from pretest to post-test situation and the experimental group showed a gain of 5.6 points in its mean scores from pretest to post-test situations. The respective 't' values for the two groups were 2.75 and 3.01 Both these values are significant at .01 level of significance.

It is evident from the above discussion that both the groups have made highly significant gains. Both the methods seem to be equally effective as far as the gain in knowledge, understanding and application of knowledge are concerned. Experiment in this College No.3 has almost shown similar results to that of College No.1. However, in the percentage of gains in the mean scores in this college in respect of both the groups, are somewhat better in comparison to the percent gains made by the two groups in the earlier colleges. The Controlled group made a gain of 8.25 points in its mean scores, that is, a gain of 21.8 percent whereas the Experimental group showed a gain of 5.6 points, that is, 16 percent. In this College too, as in the case of the first college, slightly more gain by the controlled group students, who learnt by purely lecture method, in comparison to the students of the experimental group who learned by the lecture-cum-discussion method, has been observed. Highly significant gains by both the groups might be ascertained to the sincerest efforts of an enthusiastic teacher.

The fourth College, that is, Basic T.T. College, Sardarshahr, is the college to which both the Principal Investigator and the Senior Research Fellow belonged.

The Principal Investigator was always present in the college when the teaching work under the experiment was carried out by an experienced cooperating teacher. The Principal Investigator and the Senior Research Fellow frequently observed the classes and assured themselves that the prescribed procedures of teaching were adopted while teaching the controlled and the experimental groups. Frequent discussions between the cooperating teacher and the researchers were possible. Difficulties arising from time to time were discussed and eradicated by cooperative efforts. Thus it was possible to carry out the experiment in this College strictly according to the procedure laid down for conducting the experiment. It can be said that the experiment in this college was carried out very carefully as it was possible to make frequent observations.

The results of this study in this College are presented below in Table 2.6

Table 2.6 : Gains by the Controlled and Experimental Groups from Pretest to Post-test in Basic T.T. College, Sardarshahr.

| | Controlled Group | | Experimental Group | |
|---------------------------------|------------------|-----------|--------------------|-----------|
| | Pretest | Post-test | Pretest | Post-test |
| N | 40 | 40 | 40 | 40 |
| Mean | 36.13 | 43.85 | 33.9 | 43.6 |
| S.D. | 7.65 | 6.65 | 8.35 | 10.6 |
| S.E.M | 1.22 | 1.06 | 1.33 | 1.69 |
| DM ₁ -M ₂ | | 7.72 | | 9.7 |
| S.E.D | | 1.6 | | 2.15 |
| 't' | | 4.76 | | 5.74 |
| Level of Significance | | .01 | | .01 |
| Percent of Gain | | 21.3% | | 29.0% |

Note : - CONTROLLED group includes students who learnt by Lecture method only.

- EXPERIMENTAL group is comprised of students who learnt by Lecture-cum-discussion method.

It was observed that in this college both the groups made significant gains in learning. The controlled group improved by 7.72 points in its mean scores from pretest to post-test, whereas the experimental group made a gain of 9.7 points. The percent gains shown by the controlled and experimental groups are 21.3 and 29.0 percent respectively.

The findings in this college are similar to the findings in College No.2 , that is, Government T.T. College, Bikaner. The experimental groups have shown comparatively more gain than the gain made by the Controlled groups. The only difference observed between the results of Bikaner and Sardarshahr colleges is that in Bikaner College, the Control group did not make significant gain whereas in Sardarshahr College, both the control and the experimental groups made significant gains.

In the other two Colleges, that is, the Ajmer and Gulabpura Colleges, the students of controlled group made slightly more gains than that of students of the experimental groups.

(5) Comparison of Experimental and Control Group Shifts:

With a purpose to know which of the two groups, namely, the experimental and the controlled groups, showed significantly more shift in its mean gain scores, the two groups were compared with respect to their gains from pretest to post-test situations. To find out the significance of gains, frequency distributions of gain of the students were prepared college-wise and the comparative study of the mean gains of the two groups was attempted. The 't' values on the basis of the

actual difference in mean gains and the standard error of differences were calculated. The results of this study are presented in Table 2.7

Table 2.7 : Difference in Mean Gain for the Experimental and the Control Groups from Pretest to Post-test in each of the four Colleges of education.

| College | Mean Gain in Score | | Difference | 't' | Level of Significance |
|-------------|--------------------|---------------|------------|------|-----------------------|
| | Expt. Group | Control Group | | | |
| Ajmer | 4.9 | 6.9 | 2.0 | .35 | N.S. |
| Bikaner | 5.25 | 4.1 | 1.15 | .38 | N.S. |
| Gulabpura | 5.6 | 8.3 | 2.7 | 1.23 | N.S. |
| Sardarshahr | 9.7 | 7.8 | 1.9 | 1.09 | N.S. |

Though the above table shows that the Control group made mean gains more than the experimental group in the Colleges of Ajmer and Gulabpura and the experimental group made more gains than the Control group in the Colleges of Bikaner and Sardarshahr but in none of these colleges the difference between the two groups was found to be significant. Very small 't' values indicate that whatever the gain shown by any group is merely due to chance factor.

Thus the gains cannot be attributed to the more effectiveness of either the lecture method or the lecture-cum-discussion method of teaching. Both the

methods appear to be equally effective. In adopting the lecture-cum-discussion method in place of the lecture method for teaching Educational Psychology to B.Ed., student enjoys no extra benefits.

The lecture-cum-discussion method can be an equal substitute for the lecture method as teaching by the two methods has shown significant improvement in the knowledge, understanding and application of knowledge of the students. It cannot be regarded as a better substitute as no significant differences have been observed in the mean gain scores of the two groups from pretest to post-test situations.

(B) A Study of the Impact of the Treatments
on Different Intelligence Groups :

(1) A Comparative Study of Gains made
by different Intelligence Groups:

One of the major aims of the study was to make a comparative study of gains made by different intelligence groups of both experimental and controlled groups from pretest to post-test stages. For this purpose two tests of intelligence, namely, Dr. Sherry's Adult Intelligence Test and Raven's Progressive Matrices Test, were administered. A student's mean score on these two tests was taken as representative score of his intelligence for the purpose of classification. As both these tests were not standardized on the population of Rajasthan, local norms were computed by the investigators. Stanine Norms for these tests were prepared. It was on the basis of students stanine scores that their placement in the different Intelligence groups was decided.

The stanine norms were computed by plotting scores of students on the two tests separately in two graphs. These graphs were smoothed and then the stanine norms were read. The calculated stanines for the Sherry's Adult Intelligence Test and the Raven's Progressive Matrices are shown in table 2.8

Table 2.8 : Stanine Scores of Adult Intelligence Test and Progressive Matrices Test.

| Stanine | S C O R E S | |
|---------|-------------------------|---------------------------|
| | Adult Intelligence Test | Progressive Matrices Test |
| IX | 70 + | 47 + |
| VIII | 61 - 69 | 43 - 46 |
| VII | 55 - 60 | 38 - 42 |
| VI | 48 - 54 | 33 - 37 |
| V | 41 - 47 | 28 - 32 |
| IV | 34 - 40 | 22 - 27 |
| III | 27 - 33 | 15 - 21 |
| II | 19 - 26 | 10 - 14 |
| I | 0 - 18 | 0 - 9 |

Classification of students was done on the basis of their mean stanine score on the two intelligence tests. Those students whose average stanine fell in the categories I to III were placed in the group below-average intelligence, those in between the categories IV to VI in the group average intelligence and those in VII category and above in the group of above-average intelligence.

(a) Number of Students in
Different Intelligence Groups:

Table 2.9 shows the number of students in different intelligence groups from all the four colleges in which the present experimental study was carried out.

Table 2.9 : Number of Students of the Controlled and the Experimental Groups in the three Intelligence Categories from the four Colleges.

| College | Controlled Group | | | Experimental Group | | |
|-------------|------------------|-----|-----|--------------------|-----|-------|
| | A.AV. | AV. | B.A | A.AV | AV. | B.AV. |
| Ajmer | 11 | 27 | 2 | 6 | 28 | 6 |
| Bikaner | 7 | 28 | 5 | 5 | 28 | 7 |
| Gulabpura | 13 | 25 | 2 | 6 | 27 | 7 |
| Sardarshahr | 1 | 32 | 7 | 7 | 27 | 6 |
| Total | 32 | 112 | 16 | 24 | 110 | 26 |

Note: A.AV = Above-average
AV = Average
B.AV = Below Average

The above table shows that the number of students of average intelligence in the controlled and experimental groups is nearly the same. The number of above-average students in the Controlled group is slightly more than that of the experimental group. The number of below-average students in the experimental group is more than that of the controlled group. This imbalance of

intelligence groups in the study could influence the results of the present investigation. For this purpose a comparative study of gains made by students of different intelligence of the controlled and experimental groups was made. To make inter-group comparisons the method of analysis of variance was employed. The data were arranged into 2 x 5 tables and the computation of analysis of variance was carried out.

(b) Mean Gains by Different Intelligence Groups:

Table 2.10 presents the mean gain scores from pretest to post-test stages of the three intelligence groups belonging to the controlled and the experimental groups. The mean gain of these groups have been shown college-wise as well as for the total controlled and experimental groups.

Table 2.10 : Mean Gain scores from Pretest to Post-test Stages of different intelligence groups.

| College | Controlled Group | | | Experimental Group | | |
|---------------|------------------|-----|--------|--------------------|-----|--------|
| | A. AV. | AV. | B. AV. | A. AV. | AV. | B. AV. |
| Ajmer | 7.78 | 6.7 | 6.5 | 7.16 | 6.8 | 3.2 |
| Bikaner | 5.9 | 3.5 | 5.2 | 3.6 | 6.0 | 3.1 |
| Gulabpura | 8.6 | 8.0 | 15.2 | 11.7 | 4.5 | 6.1 |
| Sardarshahr | 9.0 | 8.3 | 5.3 | 7.9 | 3.9 | 14.8 |
| Combined Mean | 7.75 | 6.7 | 6.65 | 5.9 | 5.3 | 6.7 |

The above table shows that the maximum gain was made by the Above-average intelligence students of controlled group and the least gain was made by the average intelligence students of the experimental group. The above-average intelligence students of controlled group showed a lead of 1.85 points in their mean gain over the above-average intelligence students of controlled group. The average students of controlled group also showed a lead of 1.4 points in their mean gains against the average intelligence students of the experimental group. There was hardly any difference between the mean gain scores of the below-average students of the two groups. The above table indicates that the students of average and above-average categories of controlled group were more benefitted by the lecture method in comparison to their counterparts of the experimental group who learnt by the lecture-cum-discussion method. The below-average students were almost equally benefitted by the lecture and the lecture-cum-discussion methods.

Results of Analysis of Variance:

Table 2.11 presents the computations of analysis of variance and its results. The data were arranged into 2 x 3 table and the following computations were carried out.

Table 2.11 : Analysis of Variance Computations for different Intelligence Groups data from the Controlled and the Experimental Groups.

| | |
|-----------------|----------|
| Correction | 12,562.5 |
| Total SS | 21,654.5 |
| SS bet. sets | 191.9 |
| SS bet. rows | 92.6 |
| SS bet. Columns | 46.4 |
| Interaction | 52.9 |
| SS within | 21,462.6 |

The final results of analysis of variance are shown below.

Results of Analysis of variance:

| Source | Sum of Squares | df | Mean variance | F | Level of Significance |
|---------------------|----------------|-----|---------------|------|-----------------------|
| Experimental Groups | 92.6 | 1 | 92.6 | 1.35 | N.S. |
| Intelligence Groups | 46.4 | 2 | 23.2 | 0.33 | N.S. |
| Interaction | 52.9 | 2 | 26.45 | 0.38 | N.S. |
| Within Sets | 21,462.6 | 314 | 68.3 | | |
| Total | 21,654.5 | 319 | | | |

Note : (1) N.S. = Not significant

(2) Variance within sets was used in the denominator.

The above table shows that none of the differences studied with the help of analysis of variance are significant. The three intelligence groups of the Controlled and the experimental groups do not differ significantly from each other as far as their mean gain scores are concerned. Whatever the difference observed in their mean gain scores is merely due to chance. Actually no significant difference exists between their mean gains. Thus to say which of the intelligence groups is benefitted more either by the lecture method or by the lecture-cum-discussion method is not possible. All the intelligence groups have been benefitted equally. Whatever the differences that have been observed are merely due to chance. This analysis of variance also confirms our previous findings regarding the gains made by the controlled and the experimental groups when they learned by the lecture and the lecture-cum-discussion methods respectively. The low F-value indicates that two groups do not differ significantly from each other as far as their mean gain scores are concerned from pretest to post-test stages. The interaction effect is also not significant.

Thus it can be safely concluded that both

the lecture and the lecture-cum-discussion methods are not differently effective with the different intelligence groups. The lecture method of teaching educational psychology to B.Ed. students is as good a method as the lecture-cum-discussion method. None of these methods enjoys any added advantage over the other as far as the three intelligence groups are concerned.

(C) A Study of the Impact of the Treatments
on Different Achievement Groups :

1. A Comparative Study of gains made
by Different Achievement Groups:

Another important objective of the study was to find out which of the achievement groups, that is, the high achievement, the average achievement and the below-average achievement groups is benefitted the most when they learned by the lecture or the lecture-cum-discussion methods. In other words, the present study aimed to make a comparative study of the gains made by the controlled and the experimental groups from their pretest to post-test scores. For this purpose the students included in the present study were grouped into three categories namely the high-achievers, the average-achievers and the low-achievers. These groups were formed on the basis of the students score in their final examination of B.Ed. which was conducted by the University of Rajasthan. To determine the level of students achievement, the score earned by them in the subject of Educational Psychology was taken into consideration only. The marks awarded by the external examiner were considered and internal marks were not given any weightage for determining the level of achievement. The reason for non-consideration of internal marks

was unreliability of these scores because a tendency to give high marks to ones own students in a bid to improve the results was observed among the teachers of private colleges while this tendency was absent among Government College teachers.

On the basis of marks obtained by the students in the subject of Educational Psychology, three groups were formed. Students obtaining first division marks were placed in above-average group. Those who obtained second division marks were placed in the average group and those who obtained less than 30 percent marks were assigned to the below-average groups.

(a) Number of Students in Different Achievement Groups:

The table 2.12 shows the number of students falling in each of the achievement categories, that is, above-average achievement, average achievement and below-average achievement.

Table 2.12 : Number of students of Controlled and Experimental Groups distributed in three Achievement categories.

| College | Controlled Group | | | Experimental Group | | |
|-------------|------------------|-----|-------|--------------------|-----|-------|
| | A.AV. | AV. | B.AV. | A.AV. | AV. | B.AV. |
| Ajmer | 12 | 26 | 2 | 0 | 33 | 7 |
| Bikaner | 0 | 36 | 4 | 1 | 32 | 7 |
| Gulabpura | 0 | 25 | 15 | 0 | 28 | 12 |
| Sardarshahr | 5 | 35 | 0 | 6 | 33 | 1 |
| Total | 17 | 122 | 21 | 7 | 126 | 27 |

The above table shows that maximum number of students both in the controlled and the experimental groups fall into the average category of achievement. There are very few students in the above average categories. In the controlled group the number is 17 and in the experimental group it is 7 only. There are two colleges in each group in which no above average students were found out. The number of below average students in both the groups is also not large. 21 and 27 students were found out in the controlled and the experimental groups respectively.

(b) Mean Gains by Different Achievement Groups:

The college-wise as well as for the total sample, the mean gain scores were computed. The results are shown below in table 2.13

Table 2.13 : Mean Gain Scores from Pretest to Post-test Stages of Different Achievement Groups.

| College | Controlled Group | | | Experimental Group | | |
|-------------|------------------|------|--------|--------------------|------|--------|
| | A.A.V. | AV. | B.A.V. | A.A.V. | AV. | B.A.V. |
| Ajmer | 9.25 | 6.4 | 7.0 | 0 | 6.8 | 5.0 |
| Bikaner | 0 | 4.3 | 4.5 | 3 | 5.7 | 6.7 |
| Gulabpura | 0 | 8.7 | 7.8 | 0 | 5.6 | 5.6 |
| Sardarshahr | 9.8 | 1.6 | 0 | -0.5 | 6.4 | 10.0 |
| Total | 9.41 | 4.91 | 7.09 | 0 | 6.17 | 5.89 |

It is evident from the above table that above-average and below average students in achievement of the controlled group made more mean gains than that of the above-average and below-average achievement students of the controlled group respectively. On the other hand average achievement students of the experimental ~~sh~~ group showed more mean gain than that of average achievement students of the

controlled group. It appears that the above average and below average achievement students are more benefitted from the lecture method than from the lecture-cum-discussion method. The average students seem to be more benefitted from the lecture-cum-discussion method than from the lecture method only. Significance of difference between the means of different achievement groups and that of the controlled and the experimental groups was tested by computing F-values in the analysis of variance. The interaction effects were also judged with the help of analysis of variance computation.

(c) Results of Analysis of Variance:

Table 2.14 shows the results of the analysis of variance. The data of the achievement groups were arranged into 2 x 3 tables and then the computation was carried out. The following computations were made :-

Table 2.14 : Analysis of Variance
Computations for different
Achievement Groups data
from the Controlled and
the Experimental Groups.

| | |
|-----------------|----------|
| Correction | 10634.45 |
| Total SS | 23450.55 |
| SS bet. sets | 607.55 |
| SS bet. rows | 5.75 |
| SS bet. Columns | 28.35 |
| Interaction | 573.45 |
| SS within | 22843.0 |

The final results of the analysis of variance are
shown below.

Results of Analysis of Variance:

| Source | Sum of Squares | df | Mean Variance | f | Level of Significance |
|--------------------|-------------------|-----|------------------|------|--------------------------|
| Achievement Group | 28.35 | 2 | 14.17 | .19 | N.S. |
| Experimental Group | 5.75 | 1 | 5.75 | .08 | N.S. |
| Interaction | 573.45 | 2 | 286.72 | 3.93 | .05 |
| Within sets | 22843.0 | 314 | 72.7 | | |
| Total | 23450.55 | 319 | | | |

Note: (1) N.S. = Not significant

(2) Variance within sets was used in the
Denominator.

The above table shows that the F ratios for the different achievement groups and the two experimental groups are .19 and .03 respectively. The values are much less than the expected values at .05 level of significance. Hence, it can be said that no significant differences exist between the mean gains of the different achievement groups on the one side and also between the controlled group and the experimental group on the other side. Thus the lecture-cum-discussion method has no added advantage over the lecture method as far as the different achievement groups are concerned. Here again our previous finding that no significant difference exists between the mean gain scores of the experimental and the controlled groups stands confirmed by the insignificant F-value for ~~interaction~~ the experimental group. The F-value for interaction is 3.39. This value is more than the significance value expected at .05 level of significance. Hence the interaction effects are significant. The interaction effects may be responsible for the differences which have been observed in the case of achievement and the experimental groups.

It can be safely concluded that the lecture

method or the lecture-cum-discussion method do not enjoy any added advantage over each other as far as the different achievement groups are concerned.

(D) A Study of the Cooperating Teachers'
Reactions towards the Experiment:

In the original plan there was no mention of interviews of the cooperating teachers' teaching in the four colleges to both the experimental and the controlled groups. But during the progress of the experiment, it was felt necessary that reactions of these teachers be recorded so that it may be known how they feel about the two methods and also what difficulties or inconveniences they experienced during the experimental period. For this purpose an interview-schedule covering the following points was prepared :-

- 1) Teachers' preparation for teaching.
- 2) Utility of the teaching notes prepared by the investigators which were supplied to them for help.
- 3) Teachers' views about the two methods of teaching on which the experiments were conducted.
- 4) Their observations in the class.
- 5) Students' comments about the teaching methods
- 6) Suggestions for improvement.

1. Teachers' Preparation for Teaching:

Regarding the preparation for teaching by the lecture and lecture-cum-discussion methods the experienced teachers did not find any difficulty. They made use of their experience and taught effectively. However, for discussion they had to prepare before hand the discussion points. The less experienced teachers had to work very hard with both the methods. They studied in the library and made preparation for their teaching. All the teachers felt the need for preparing discussion points before hand. The main difficulty experienced by them was that of finding of appropriate terminology for English terms. For this purpose they had to consult a number of Hindi books.

2. Suitability of the Teaching Notes:

All the four teachers expressed their satisfaction about the teaching notes supplied to them for their assistance. They found them quite comprehensive, full of information, well prepared from the point of view of content, language and style. Some of the teachers expressed that they did not feel the need to consult books other than these notes. However, for some topics such as reasoning and problem-solving they had

to study other good books. Some teachers did make supplementary reading. This they had to do for finding suitable Hindi terminology.

3. Teaching Methods Employed:

For the controlled group, all the teachers adopted the routine lecture method for which they were well versed. Detailed lectures with suitable examples were delivered. Questions were permitted occasionally. For the experimental group the period was cut into two halves. First half was devoted for initiation of the topic and the second half for discussion. During the discussion, questions by both the teachers and the students were entertained. One teacher used to announce before hand the topic for study for the next day. Occasionally, the teachers had to deviate from the set procedure. Sometimes they had to resort to full period lecturing and the next day full period discussion.

4. Teachers' Observations in the Class:

In two of the four colleges only two periods per week were devoted for experimental teaching. The teacher found this system to be inconvenient because after five days' gap he found it difficult to maintain the links with his previous teaching or discussion.

One teacher~~eng~~ found students unmotivated towards the lecture-cum-discussion method. The cause of their being not motivated was too much time consumed in unnecessary discussion and the fear of their fast-approaching examination. The teacher quoted the students' words in his interview which are reproduced below :

"Sir, fire this discussion method. We want to pass the examination, come directly to the topic and give us the notes".

Attendance too was irregular in his class. The other three teachers found the students cooperating and well motivated. They found the brilliant students especially motivated for discussion because the students got opportunity for active participation in the learning activity. Hardly 10 to 20 percent of the students showed enthusiasm for discussion while the rest did not show any interest in it and sometimes even expressed their irritation and dissatisfaction for it. Mostly, the discussion was confined between the teachers and the students. The students rarely discussed amongst themselves. Teachers felt the period of 45 minutes for lecture-cum-discussion method to be too short. They suggested that it should be of at least 60 minutes.

5. Teachers' Feelings after Teaching:

All the teachers felt mental satisfaction after

the lecture-cum-discussion period. One teacher who felt fatigued after the lecture method did not feel so after the lecture-cum-discussion method. The discussion provided pauses and rest for the teacher when the students were engaged in discussion. All the four teachers felt discussion as more interesting and confidence providing.

6. Students' Feelings about the Methods:

The students felt interested in the lecture-cum-discussion method, inspite of the fact that they had to do more labour at home for active participation in discussion. In one college the students of the controlled group also expressed their desire to join the discussion class. The students felt disinterested in the discussion method only when they found their examination fast-approaching. All the students were of the opinion that the discussion groups were too large and twenty minutes discussion period was insufficient for drawing any conclusive result out of it.

7. Teachers' General Feelings about the Experiment and Their Suggestions:

All the teachers felt satisfied with the experimental design. Two teachers liked the experimentation on lecture-cum-discussion method whereas two

teachers wanted experimentation on programmed learning or workshop teaching. All of them felt the need for prior training of the teachers' teaching by the experimental methods. Under the prevailing conditions such as, a large number of students in the classes, huge syllabus and examination oriented attitudes of the students, the teachers felt that lecture method is more paying, less time-consuming and more suitable. Moreover, they carried the belief that discussion is suitable for bright students only.

The suggestions put forward by the teachers are as below :-

- 1) Check on attendance is necessary. Many students missed classes during the experimental period.
- 2) Length of the lecture-cum-discussion method period be increased from 40 or 45 minutes to one hour.
- 3) To get students' cooperation certain incentives should be given.
- 4) Regular four days teaching per week is needed instead of only two periods a week.
- 5) In the time-table the lecture-cum-discussion method period should be set in early part of the day.

6) Topic for discussion and the discussion points should be supplied to the students before hand.

7) Summary of the outcomes of the discussion be given by the teachers to the students.

8) Experiment should be organised in the early months of the college session rather than near the examination.

9) Training of the teachers for discussion methods is essential.

Some Suggestions for FURTHER RESEARCH are mentioned below :-

1) Intensive research in this very area.

2) Study of the impact of the use of Audio-visual aids in students learning.

3) Comparative study of the effectiveness of the lecture-cum-discussion method with programmed learning or seminar or workshop method.

Section-III

SUMMARY OF FINDINGS, INTERPRETATION AND CONCLUSIONS.

In the second section of this report, the analysis and interpretation of data gathered through the experiments conducted on controlled and experimental groups in four different Colleges of Education of Rajasthan were presented. Alongwith the analysis and interpretation of data findings were also reported explicitly. The present section presents the summary of all the findings reported at different places in the earlier section along with the interpretation and the conclusions drawn on their basis.

(A) The Effectiveness of the Lecture and the Lecture-cum-Discussion Methods of Teaching:

One selected Unit of Learning from the B.Ed. syllabus of Educational Psychology of the University of Rajasthan, was taught to two different groups known as the controlled and the experimental groups by the two different methods of teaching, namely, the lecture and the lecture-cum-discussion methods by the same set of teachers in four different colleges of education and also by devoting equal amount of time for the two methods. The main objective of the investigation was

to study the relative effectiveness of the above mentioned two methods of teaching. The study of the shifts from pretest to post-test stages in the cases of both controlled and the experimental groups reveals the following facts :-

1. The Effectiveness of the two Methods:

Both the lecture and the lecture-cum-discussion methods of teaching educational psychology are quite effective in producing significant changes in the students in the form of increase in knowledge, better understanding and application of knowledge. This fact is evident from the significant gains in learning made by both the controlled and the experimental groups from their pretest to post-test stages. The control group, which studied by merely the lecture method, showed significant improvement in the three out of the four colleges in which the experiment was conducted. Even in the fourth college, considerable improvement was made by the group but it was slightly less than the .05 level of significance. The experimental group on the other hand, which studied by the lecture-cum-discussion method, made significant gains in all the four colleges. The level of significance for improvement in three colleges was .01 and in the one college it was .05

Thus it can be conveniently concluded that both the lecture and the lecture-cum-discussion methods are useful and suitable methods for teaching educational psychology to B.Ed. students as both have succeeded in producing significant changes in students learning.

2. The Relative Effectiveness of the two Methods:

The comparative study of gains by the controlled and the experimental groups in the four colleges where the experiment was conducted, reveals that in two colleges the lecture method produced better results than the lecture-cum-discussion method and in the remaining two colleges the lecture-cum-discussion method helped the experimental group to make more gains than the control group. A study of the significance of difference between the gains made by the two groups in all the four colleges show that none of these differences is significant. Hence to say that one method is more effective than the other is a difficult task as no evidence is available in this respect from the experiments conducted in the present study.

3. The Effectiveness of the Lecture and the Lecture-cum-Discussion Methods with Different Intelligence Groups:

The second important objective of the present investigation was to study the difference between the

gain in learning of the average, above-average and below-average students in intelligence of the controlled and the experimental groups. The purpose of studying these differences was to find out the effectiveness of the two methods of teaching i.e. the lecture and the lecture-cum-discussion, with regard to different intelligence groups.

For this purpose three intelligence groups were formed on the basis of administration of two intelligence tests, one verbal and another non-verbal. The grouping was based on the mean score of the students on the two intelligence tests and the local norms computed by the investigators.

The data were treated statistically with the help of analysis of variance which produced the following results :-

(1) The number of above-average intelligence students in the experimental group was slightly less than that of the control group. The number of below-average intelligence students in the control group was slightly less than that of the experimental group. The number of average intelligence students in the two groups was almost equal.

(2) The highest mean gain in scores was made by the above-average intelligence group of the controlled group and the least mean gain was by the average intelligence students of the experimental group.

(3) The above-average and the average intelligence groups were benefitted slightly more by the lecture method than the lecture-cum-discussion method. Below-average intelligence students were benefitted almost equally by the two methods.

(4) The results of the analysis of variance revealed that none of the three intelligence groups made significantly different gains. A very low F-value for intelligence groups shows that the groups do not differ significantly from each other as far as their achievement is concerned. Whatever the differences observed were due to chance only. Thus it can be concluded that none of the two teaching methods, that is, the lecture and the lecture-cum-discussion methods is more effective with any of the three intelligence groups. All the intelligence groups have been benefitted equally by the two methods.

The analysis of variance study also confirms

our previous finding regarding the difference between the gains made by the control and the experimental groups. The low F-value for different experimental groups also indicates that no significant difference between the gains of the two groups exists.

(C) The Effectiveness of the Lecture and the lecture-cum-discussion Methods with different Achievement Groups:

Another important objective of the investigation was to study the difference between the gain in learning of the above-average, average and below-average achievers of the controlled and the experimental groups. The objective of making these comparisons was to judge the effectiveness of the two methods of teaching, that is, the lecture and the lecture-cum-discussion, with the different achievement groups. An attempt was made to find out the relative effectiveness of the two methods of teaching for different achievement groups.

For this purpose, three achievement groups were identified. The criteria used for identification was the students achievement in their final B.Ed. Examination in the subject of Educational Psychology conducted by the University of Rajasthan. The three groups identified were designated as above-average, average and below-average achievers.

The data of these three groups were also treated statistically. The method of analysis of variance was employed for this purpose. The results are summarised as below :-

(1) The number of above-average achievers in the controlled group was more than that of above-average students of the experimental group. The difference with regard to other categories of achievement was not much between the two groups.

(2) The analysis of variance study did not show any significant difference between the three achievement groups with regard to their gains in learning from pretest to post-test stages when they learned by two different methods of teaching.

Though the above-average and the below-average achievers made more gains over their counterparts in the experimental group and average achievers of the experimental group made slightly more gains over the average achievers of the controlled group, but these differences were statistically insignificant. The observed differences between these groups could be assigned to the chance factor only.

Thus nothing can be said about the superiority of either of the two methods as far as learning of

the different achievement groups is concerned. It can be concluded that both the lecture and the lecture-cum-discussion methods of teaching educational psychology are equally effective for high, average and low achievers.

The analysis of variance study also confirms our previous finding that no significant difference exists between the gains made by the controlled group and the experimental group from the pretest to the post-test stages of the experiment.

(D) Cooperating Teachers' Reactions towards the experiment:

To know how did the teachers feel about the experiment and what difficulties did they experience in carrying out the experimental teaching, interviews with them were carried out with the help of an interview-schedule. The teachers were asked to express their feelings freely so that such experiments may be carried out more efficiently in ~~far~~ future. The purpose of interview was also to have an estimate of the relative success and effectiveness of the two methods of teaching.

(1) The Teachers felt a need for Prior Preparation for their Teaching:

Most of the teachers felt an urgent need for

making before-hand preparations for doing the experimental teaching. They suggested that discussions in the class could be made more useful only by pre-planning. A need for preparing discussion points was felt by all the teachers.

The difficulty of finding suitable Hindi terms for English terms was experienced by almost all the teachers. Many teachers had to exert a lot in finding suitable Hindi terminology.

(2) The Teachers expressed satisfaction about the Teaching Notes:

All the teachers expressed their satisfaction with the teaching notes supplied to them to facilitate their teaching work. They found them much useful.

(3) The Teachers wanted continuous Teaching:

The teachers did not like the system of experimental teaching organised for only two times a week in the two colleges. They wished that experimental teaching should be continued throughout the week without any break. This, they felt, will help in maintaining continuity of the topic.

(4) Students did not show favour for the Lecture-cum-discussion Method:

The teachers reported that their students

did not show liking for the lecture-cum-discussion method. They wanted that they should be taught by the lecture method only as they found it best from the examination point of view. With the approach of their annual examination their dislike for the lecture-cum-discussion method went on increasing. As far as the students are concerned they want to study only for examination only. Their liking for a particular method depends upon their examination motive only. Actually the students enjoyed teaching when done by their teachers by the lecture-cum-discussion method. At one stage even controlled group students wanted to learn by the lecture-cum-discussion method. They showed disfavour for it only because of fear of examination.

(5) The Teachers found the Lecture Method as more fatigue-producing and the Lecture-cum-Discussion Method as providing more Mental Satisfaction:

All the teachers felt mental satisfaction after doing teaching by the lecture-cum-discussion method. A few teachers felt fatigued after teaching by the lecture method. All of them found the lecture-cum-discussion method as more satisfying and more interesting.

(6) Teachers liked the present Experimental Project:

All the teachers appreciated the present study. They liked the experimental design. They suggested that experiments should be conducted with other methods of teaching also such as team-teaching and the programmed learning.

Under the prevailing conditions in colleges they showed their preference for the lecture method. They believed the discussion was useful for the bright students only.

(7) Suggestions Put Forward by the Teachers for improvement:

These are as below :-

(a) Need for improvement in attendance.

(b) Need to increase the duration of the period when the lecture-cum-discussion method is followed.

(c) Need to improve the students' motivation.

(d) Need to do continuous teaching.

(e) Need to organise lecture-cum-discussion teaching during the early periods of the college timetable.

(f) Need to announce the topics for discussion one day early.

(g) Need to supply the discussion points to the students.

(h) Need to supply the outcomes of discussion in summary form to the students.

(i) Need to conduct the experiment in the early part of the session.

(j) Need for training of the cooperating teachers.

ADULT INTELLIGENCE TEST

BY

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INSTRUCTIONS

1. When you are told to begin, answer the questions as quickly and as carefully as you can.
2. Begin at the beginning and go straight through.
3. If after trying a question you find you cannot do it, don't waste time but go on to the next.
4. When you finish one page, go on to the next.
5. You may do any rough work at the side of the page if you wish.
6. You will have one hour and you will be told the time every quarter of an hour. No one is expected to do everything. Just do as much as you can.
7. Make any alterations in your answer clearly.
8. Ask no questions at all.
9. Write answers on the separate Answer Sheet supplied to you.

1

S.N.

Write on the answer sheet the word standing in the same connection with the third word as the second word does with the first.

Example :

Pencil : Drawing :: Brush .

Here "painting" is the proper word which stands for brush, making a connection like first and second word. So, painting is the answer.

Now do the following :

23. Surprise : Strange :: Fear :

24. Whole : Part :: Book :

25. Boy : Man :: Girl :

26. Few : Seldom :: Many :

उत्तर तालिका में ऐसे शब्द को लिखिये जिसका सम्बन्ध तीसरे शब्द से उसी प्रकार का हो जैसा कि पहिले और दूसरे में है।

उदाहरण—

घड़ी : समय :: कुतुबनुमा :
ऊपर के उदाहरण में 'दिशा' सही शब्द है, जिसका सम्बन्ध 'कुतुबनुमा' से उसी प्रकार बनता है जैसा कि 'समय' का 'घड़ी' से। अब आप भी इसी प्रकार कीजिए।

27. मछली : पानी :: मनुष्य :

28. खाना : रोटी :: पीना :

29. सफलता : खुशी :: असफलता :

30. फेफड़े : वायु :: हृदय :

WORDS

Art, Scenery, Painting Hair

23. Angry, Peculiar, Terrible, Anxious.

24. Subject, Entire, Size, page.

25. Infant, Woman, Husband, Mother.

26. Often, Never, More, Sometimes.

शब्द

पूरब, निर्देक, दिशा, तापक्रम

27. खाना, पानी, हवा, वस्त्र

28. कुआँ, पानी, पर्वत, वर्षा

29. निराशा, भाग्यहीन, अनिश्चित, दुःख

30. जिगर, रक्त, मांसपेशी, भोजन

S.N

Here are some questions about codes. You have to find out how the code is made up in each question (The codes are not always the same in different words), and then write the correct word on the answer sheet.

Examples :

If ANKC means bold, EHS means fit. The real word 'bold' is found from the code word 'A N K C' by taking the next letter in the alphabet to each of letters in 'ANKC,' that is, b for A, o for N and so on. In the same code, then 'EHS' would be 'fit', and so we have selected 'fit'. Now do the following

31. If LOJGF means "knife" what would USBJO mean?
32. If YZW means 'bad', what would ZXV mean?
33. If NPVTF means "mouse", what would XPSET mean?

यहाँ संकेत लिपि सम्बन्धी कुछ अक्षर दिये गये हैं। आपको यह मालूम करना है कि प्रत्येक शब्द में किस आधार पर संकेत बनाये गये हैं (ध्यान रखिए कि विभिन्न शब्दों में संकेत एक समान नहीं है) सही शब्दों को उत्तर तालिका में लिखिए

उदाहरण—यदि क ञ भ र का अर्थ खटमल तो छ र थ का अर्थ होगा 'जलद' वास्तविक शब्द 'खटमल' की रचना सांकेतिक अक्षर 'क ञ भ र' के क्रमशः अगले अक्षर के आधार पर की गई है जैसे 'क' का अगला अक्षर 'ख', होगा ञ का अगला अक्षर 'ट' होगा 'भ' का अगला अक्षर 'म' क्रमशः इस प्रकार 'खटमल' शब्द की रचना की गई। इस प्रकार छ र थ का वास्तविक शब्द 'जलद' है। अब आप नीचे लिखे हुए संकेताक्षरों से बने हुए वास्तविक शब्दों को उत्तर तालिका में लिखिये।

34. यदि फ य ख थ का अर्थ है बरगद, तो ञ भ ञ भ का क्या अर्थ है?

WORDS

Dip Fat, Eat, Fit, Far.

31. Tails, Train, Strain, Trail.

32. Bag, Ace, Eye, Age.

33. Worth, Wood, Words, Warls.

TRAIL

WATER

2

34. रमभट, टमटम, सरपट, हुलचल

S N.

35. यदि ग र व ग का अर्थ है कमरक तो ब म व का क्या अर्थ है ?

36. यदि फ ल श व का अर्थ है परवल तो ख य व का क्या अर्थ है ?

Look at these letters.—ABCDE

37. If the fourth letter changed place with the first, the fifth letter changed places with the third, and the second letter was turned upside down, what would be the result ?

38. Suppose the letters are to be written in the opposite order starting with E and ending with A. If now the second letter in this new order changed place with the third and the first letter with the fourth, write the result.

इन अक्षरों को देखिये अ ब स द ई ५२३४

39. यदि चौथे अक्षर का स्थान प्रथम अक्षर से, पाँचवें अक्षर का तृतीय अक्षर से, और द्वितीय अक्षर चला कर दिया जावे तो क्या परिणाम होगा ?

40. अ, ब, स, द, ई अक्षरों का क्रम बदल दीजिये अर्थात् 'ई' से प्रारम्भ करके अ से समाप्त करिये। यदि अ, ब इस क्रम परिवर्तन में दूसरे अक्षर का स्थान तीसरे से और पहिले अक्षर का स्थान चौथे से बदल दिया जावे तो क्या परिणाम होगा ? लिखिए।

35. बटक, रपट, सटक, रबर

36. पटक, सरक, कमल, कलम

37. DBEAC, DAECB, DgEAC,
AQEBC, gDEAC, QBECA,

38. CBDEA, BCDEA, ACDEB,
DCBAE, ABCDE, BCEDA,

39. द ब ई अ ५ ५ अ ई स ब,
अ ५ ई ब स, ५ द ई अ स,
द ५ ई स अ, द ५ ई अ स,

40. स ब द ई अ, ब स द ई अ,
अ स द ई ब, द स ब अ ई, अ ब स
द ई, ब स ई ब अ

5. ABSTRACTION TEST

Take out two meaningful successive words from the following words.

Example : In the word 'Inharmonious', harm and arm are the two successive words.
Now do the following :—

41. Admissible.

42. Industrial.

43. Romantic.

44. Irresistible.

S. N.

A printer once lost all his types for the five Vowels and the letter "h" and he has to use punctuation marks for them as shown in the following key :

a e i o u h

key , . ; : ! —

If he had to print the questions, "How many eyes have you?", he would print it like this :

— : w. m, ny . y . s — , v . y : ! ?

What do the following mean ?

45. C : I O ! R

46. W — , t

47. W ; S .

48. — : w

49. P ; , n o

50. B r ! t .

एक मुद्रक समस्त क, च, म, न, प, ग, अक्षर (टाइप) खो गये। इनके स्थान पर उसने क्रमशः निम्नलिखित चिन्हों का प्रयोग किया :—

अक्षर क च म न प ग

चिन्ह , . ; : ! —

उदाहरण—यदि उसे लिखना है 'कलम खो गया' तो वह उसे इस प्रकार लिखेगा, ल ; खो गया।

इसी आधार पर निम्नलिखित शब्दों को किस प्रकार पढ़ा जायगा ?

51. , ! डे

52. ! ी स : ^

53. , ; र

54. ! 1 : ी

55. — — री

56. . ; न

S.N.

57. The bus leaves for Mathura in 10 minutes from now. But I have just now decided to go by the 7-35 train, it will take us 20 minutes to walk to the station and that leaves us 5 minutes to spare. At what time does the bus leave for Mathura?
58. If the day before yesterday was Thursday, what day is the day after the day after to-morrow?
59. A man, pointing to a portrait exclaimed, "I have no sister or brother but that man's father is my father's son. Whose portrait he was looking at?"
60. On one side of a street the houses have odd numbers and on the other side even numbers. Number 1 is exactly opposite number 2, number 3 opposite No. 4 and so on all down the street. From my house which is No. 8, I watch a man come from No. 1, and go without crossing the road to a house, three doors beyond the house opposite mine. What is the No. of the house he goes to?
61. Which of the following words has as many T's as it has E's and has the same number of R's as the word immediately after it.
- Street, tested, letter, trumpeter, ferret.
62. If the day before yesterday was Monday, what day will it be the day after tomorrow?
63. Nine days ago I said, "Day after tomorrow is my birthday." If my birthday fell on Friday, what day of the week will it be tomorrow?
64. Three sisters are sitting in a row. Snehlata is on the right side of Premlata, Premlata on the right side of Kusumlata. Give the name of the sister who is sitting in the middle.
65. Raj Kumar while sitting in a railway compartment is facing the engine. The rays of the setting sun through the window are falling upon his left hand. Give the direction in which the train is moving.

S.N.

With what discoveries are the following names associated ?

- 66. Darwin
- 67. Faraday,
- 68. Madame Curie.

Where are the following Indian institutions situated ?

- 69. Indian School of Mines and Applied Geology,
- 70. Bose Research Institute.

With what important battle or war do you associate each of the following names ?

- 71. Maharana Pratap.

Give the names of the following.

- 72. The eldest among the Pandava brothers.
- 73. The great book written by Chanakya.
- 74. The richest temple sacked by Mahmud of Ghazni.

Where are the following located ?

- 75. Nangal.
- 76. Hirakud.

At what places were the following born ?

- 77. Mahatma Gandhi.
- 78. Pt. Nehru.

Give the types of Government in the following countries :—

- 79. U.S.A.
- 80. U.S.S.R.

Name the Sovereign Head of the following countries :—

- 81. India.
- 82. Great Britain.
- 83. U.S.A.

What do the following stand for ?

- 84. A.I.C.C.

S.N.

85. U.N.E.S.C.O.

Name well known books written by the following in prison :—

86. Pt. Nehru.

87. Mahatma Gandhi.

Write the name of the writers of the following.

88. Saket.

89. Godan.

90. Pride and Prejudice.

91. Tempest.

92. Paradise Lost.

What are the following persons known for

93. Tensing.

94. Dr Radha Krishnan.

95. Newton.

96. Vinoba Bhave.

Who wrote the following :—

97. Jana Gana Mana.

98. Bande Mataran.

99. Raghupati Raghava Raja Ram

100. Mere to Girdhar Gopal Dusara Na Koi.

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मनोविज्ञान-अधिगम निष्पत्ति परीक्षण

Achievement Test in Psychology of Learning.

(Prepared under the G. A. R. P. Scheme of
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जब तक आपको कहा न जाये आप इस पुस्तिका को न खोलें।

निर्देश बिन्दु —

- (१) जब तक आपको कहा न जाये आप इस पुस्तिका को न खोलें।
- (२) आपको अलग में उत्तर-पत्र दिया जा रहा है आप उसपर अपना नाम, पता तथा अन्य आवश्यक सूचनाये अंकित कर दें।
- (३) प्रश्नों को हल करने से पूर्व प्रश्न के ऊपर दिये गये निर्देश को ध्यान पूर्वक अवश्य पढ़ें तथा प्रथम पृष्ठ पर दिये गये उदाहरण को भली भांति समझ लें।
- (४) अनुमति के आधार पर प्रश्न का उत्तर न दे अन्यथा गलत प्रश्न के अंक कट जायेंगे।
- (५) जब आपको परीक्षण प्रारम्भ करने के लिये कहा जाये तो आप यथा सम्भव शीघ्रता एवं सावधानी से प्रारम्भ करें।
- (६) प्रथम पृष्ठ से प्रारम्भ करें तथा लगातार प्रश्न एक दूसरे के बाद करते चले जायें।
- (७) प्रत्येक प्रश्न का उत्तर, उत्तर-पत्र में निर्धारित स्थान पर ही दीजिये।
- (८) न जाने वाले प्रश्न पर व्यर्थ समय न खोयें तथा अगले प्रश्न करने का प्रयत्न करें।
- (९) सभी प्रश्नों के अंक समान हैं।
- (१०) यदि उत्तर देते समय आपसे चिन्ह गलत स्थान पर लग जाये तो उसे इस प्रकार काटियें तथा सही चौकोर खाने में गुणन (X) का चिन्ह लगावें।

आदेश तथा उदाहरण

इस परीक्षण में १०० प्रश्न हैं। प्रत्येक प्रश्न के पाँच सम्भावित उत्तर हैं, जिन्हें क, ख, ग, घ तथा ङ से प्रदर्शित किया गया है। प्रत्येक प्रश्न में दिये गये पाँच सम्भावित उत्तरों में से एक उत्तर सर्वाधिक सही है। आपको प्रत्येक प्रश्न में से सही उत्तर का चयन करना है। जिस उत्तर का आप चयन करें अलग से दिये गये उत्तर-पत्र में उस प्रश्न की संख्या के संकेतक अक्षर के नीचे बने चौकोर खाने में गुणन (X) का चिन्ह अंकित कर दें। इस कार्य को करने के लिये नीचे एक प्रश्न उदाहरण स्वरूप हल किया गया है। उसे ध्यानपूर्वक देखकर समझ लें:-

उदाहरण- सीखने की प्रक्रिया (Learning Process) पर किसका प्रभाव पड़ता है-

- (क) परिवार का।
- (ख) विद्यालय का।
- (ग) समाज का।
- (घ) इन तीनों का।
- (ङ) इन में से किसी का नहीं।

उत्तर पत्र का नमूना

| क | ख | ग | घ | ङ |
|---|---|---|---|---|
| | | | X | |

उपयुक्त उदाहरण में 'घ' उत्तर सर्वाधिक सही उत्तर है। इसलिए उत्तर पत्र के नमूने में 'घ' व्यंजन के नीचे बने चौकोर खाने में गुणन का चिन्ह (X) अंकित किया गया है।

जब तक कहा न जाये इस पुस्तिका को न खोलें।

इस पुस्तिका पर किसी प्रकार का भी निशान न लगायें।

प्रश्न-पुस्तिका में किसी प्रकार का भी चिन्ह न लगाइये ।

अलग से दिये गये उत्तर-पत्र में ही अपने सही उत्तरों को निर्देशित विधि से अंकित कीजिए ।

१- कौन सा उदाहरण अनाजित व्यवहारों (Unlearned behaviour) की ओर संकेत करता है-

- क- नवीन आदतों का बनना ।
- ख- ज्ञान का होना ।
- ग- शिशु द्वारा माँ का दूध पीना ।
- घ- अभिवृत्ति का निर्माण होना ।
- ङ- कौशल प्राप्त करना ।

२- अधिगम (Learning) का सबसे कम ग्रहणीय अर्थ है-

- क- बिना उद्देश्य के सीखना ।
- ख- गत अनुभवों के आधार पर सीखना ।
- ग- चेतना के साथ सीखना ।
- घ- अचेतन रूप में सीखना ।
- ङ- सभी अर्थ समान रूप से ग्रहणीय है ।

३- अधिगम (Learning) की सर्वोत्तम परिभाषा है-

- क- यह ज्ञान प्राप्त करने की प्रक्रिया है ।
- ख- किसी विषय में दक्षता प्राप्त करने की प्रक्रिया है ।
- ग- आदत, कुशलता एवं सामाजिक स्थापित करने की योग्यता है ।
- घ- पूर्व ज्ञान के आधार पर परिवर्तन की प्रक्रिया है ।
- ङ- समस्या के समाधान करने की योग्यता है ।

४- सीखने की प्रक्रिया (Learning Process) का अभिप्राय है-

- क- परीक्षा में सफलता प्राप्त करना ।
- ख- किसी बात को केवल सुनकर स्मरण कर लेना ।
- ग- पुस्तकार एवं दृष्ट की प्रक्रिया का परिणाम ।
- घ- ज्ञान एकत्रित करने की प्रक्रिया ।
- ङ- व्यक्ति के व्यवहार-प्रदर्शों में परिवर्तन की प्रक्रिया ।

५- अधिगम (Learning) से तात्पर्य है-

- क- ज्ञान प्राप्त करना तथा उसको संगठित करना ।
- ख- समस्या सुलभता ।
- ग- दक्षता प्राप्त करना ।
- घ- अनुभव एवं परीक्षण के द्वारा व्यवहार में परिवर्तन होना ।
- ङ- परिपक्वता प्राप्त करना ।

६- विम्बोक्त अधिगम (Learning) की विशेषताओं में से कौन सी विशेषता अधिगम की वहीं हैं-

- क- यह व्यवहार के प्रत्येक पहलू को प्रभावित करता है ।
- ख- यह सदैव उद्देश्य के साथ होता है ।
- ग- यह सदैव स्थायी होता है ।
- घ- यह परिवर्तन की प्रक्रिया है, प्रक्रिया का परिणाम नहीं ।
- ङ- इसका स्थायान्तरण सम्भव है ।

७- अधिगम सीखने की प्रक्रिया (Process of Learning) है क्योंकि यह-

- क- सृजनशील अनुभव से परे है ।
- ख- ५० वर्ष की आयु के पश्चात् बन्द हो जाती है ।
- ग- सदैव सुधारात्मक होती है ।
- घ- केवल मानव जीवन में सम्भव है ।
- ङ- पूर्णतया या आंशिक रूप से अनुभव एवं प्रशिक्षण का परिणाम है ।

८- बालक के प्रति शिक्षक का सबसे महत्वपूर्ण कर्तव्य है कि वह-

- क- बालक को परीक्षा की तैयारी कराये ।
- ख- बालक को गुरु तथा माता-पिता का आदर करवा सिखाये ।
- ग- बालक को उत्तम विधि से पढ़ना सिखाये ।
- घ- बालक की स्वयं सीखने की परिस्थितियों की व्यवस्था करे ।
- ङ- बालक में परिवर्तन लाये ।

९- परिपक्वता (Maturation) बालक की वृद्धि एवं विकास करने वाली ऐसी प्रक्रिया है जो कि-

- क- अधिगम के समाव है ।
- ख- अधिगम के विपरीत है ।
- ग- अधिगम से सम्बन्धित है ।
- घ- अधिगम की पर्यायवाची है ।
- ङ- अधिगम से भिन्न है ।

१०- अधिगम (Learning) का अर्थ है-

- क- एक प्रक्रिया, जो प्रक्रिया का परिणाम नहीं है ।
- ख- जो व्यवहार में वृद्धि एवं विकास द्वारा परिवर्तन की प्रक्रिया है ।
- ग- यह एक विधि है जिसके फलस्वरूप परिवर्तन होते हैं ।
- घ- यह वातावरण एवं बालक की विभिन्न अन्योन्य क्रिया (Interaction) का परिणाम है ।
- ङ- यह शिक्षा का पर्यायवाची है ।

११- सीखने की प्रक्रिया का प्रमुख तत्व है सीखने वाला, उसका व्यक्तित्व तथा वातावरण-क्योंकि-

- क- सीखने वाला स्वयं उसमें प्रधान होता है
- ख- सीखने वाला तथा उसका व्यक्तित्व उसमें निहित होता है ।
- ग- वातावरण से उत्पन्न परिस्थितियाँ उसमें योग देती है ।
- घ- सीखने वाला तथा वातावरण दोनों का योग होता है ।
- ङ- उसमें सीखने वाले के व्यक्तित्व की वातावरण से अन्योन्य क्रियाएँ होती हैं ।

१२- मानवावस्था सीखने की व्यापक क्रिया है क्योंकि—

- क- इसमें शैशवावस्था का समावेश होता है ।
- ख- इसमें बाल्यावस्था का समावेश होता है ।
- ग- इसमें युवावस्था का समावेश होता है ।
- घ- इसमें प्रौढ़ावस्था का समावेश होता है ।
- ङ- इसमें उपर्युक्त चारों अवस्थाओं का समावेश होता है ।

१३- पेशीय अधिगम (Motor Learning) से तात्पर्य है—

- क- विचार विमर्श तथा विश्लेषण करके सीखना ।
- ख- विचार प्रत्यय तथा मानसिक साहचर्य अर्जित करना ।
- ग- शारीरिक क्रियाओं के द्वारा दक्षता प्राप्त करना ।
- घ- अनायास ही सीख जाना ।
- ङ- संप्रत्यात्मक (Conceptual) तथा सृजनात्मक (Creative) अधिगम ।

१४-कौनसी प्रक्रिया प्रात्याक्षिक-पेशीय(Perceptual motor)द्वारा सीखनेकी प्रक्रिया को प्रोत्साहित नहीं करती—

- क- नृत्य करने में दक्षता प्राप्त करना ।
- ख- साइकिल चलाते में निपुणता प्राप्त करना ।
- ग- ज्ञानेन्द्रियों द्वारा सामान्य प्रवृत्तियाँ अर्जित करना ।
- घ- हार्मोनियम पर गीत निष्कासना ।
- ङ- तैरने का अभ्यास करना ।

१५- कौन सा उदाहरण प्रत्यात्मक अधिगम (Ideational Learning) का नहीं है—

- क- खेल में कुशलता ।
- ख- चित्रकारी ।
- ग- पठन-लेखन ।
- घ- प्रत्यय बोध ।
- ङ- अमूर्त बोध ।

१६- संज्ञानात्मक अधिगम (Cognitive Learning) का तात्पर्य कौन सा उदाहरण नहीं बताता—

- क- बालक को किसी घटना के विशेष तथ्य प्रदान करना ।
- ख- विभिन्न प्रत्ययों में सम्बन्धों का स्पष्टीकरण करना ।
- ग- बालक को स्वयं के अनुभवों के आधार पर सामान्यीकरण करने में सहायता देना ।
- घ- प्रात्यक्षिक तथा कल्पनात्मक अधिगम द्वारा सीखना ।
- ङ- संवेग तथा स्थायी भावों (Sentiments) का बालक में विकास करना ।

१७- किस प्रकार के अधिगम द्वारा बालकों में स्नेह, प्यार तथा देशभक्ति आदि के गुण विकसित किये जा सकते हैं—

- क- संज्ञानात्मक अधिगम (Cognitive Learning)
- ख- अभिवृत्त्यात्मक अधिगम (Attitudinal Learning)
- ग- अमूर्त अधिगम (Abstract Learning)
- घ- क्रियावृत्तिक अधिगम (Conative Learning)
- ङ- कल्पनात्मक अधिगम (Imaginative Learning)

१८- बालक की शिक्षा के लिये सबसे महत्वपूर्ण है-

- क- संज्ञानात्मक अधिगम (Cognitive Learning)
- ख- सृजनारत्मक अधिगम (Creative Learning)
- ग- अभिवृत्त्यात्मक अधिगम (Attitudinal Learning)
- घ- क्रियावृत्तिक अधिगम (Learning by skills)
- ङ- अपने अपने स्थान पर सभी ।

१९- क्रियावृत्तिक अधिगम (Conative Learning) का तात्पर्य है-

- क- अभिवृत्तियों एवं मानवीय मूल्यों का विकास करना ।
- ख- ज्ञान प्रत्यय तथा उनमें पारस्परिक सम्बन्धों के बारे में जानना ।
- ग- अभ्यास द्वारा पेशीय-प्रशिक्षण विधि से कौशल अर्जित करना ।
- घ- दूसरों के साथ उचित व्यवहार करना सीखना ।
- ङ- समस्याओं का समाधान खोजना ।

२०- हमें अधिगम के विभिन्न सिद्धान्तों के बारे में क्यों जानना चाहिए ?

- क- जिससे प्रत्येक सिद्धान्त का पूर्ण सैद्धान्तिक ज्ञान प्राप्त हो जाये ।
- ख- जिससे प्रत्येक सिद्धान्त के उद्भावक लोगों द्वारा किये गये प्रयोगों के विषय में पूरी जानकारी होजाये ।
- ग- विभिन्न सिद्धान्तों की अच्छाई तथा कमियाँ मालूम हो जायें ।
- घ- हम अपना एक नया सिद्धान्त निकाल सकें ।
- ङ- विभिन्न सिद्धान्तों के शैक्षिक प्रभाव तथा कक्षा में प्रयोगसम्बन्धी तथ्यों का ज्ञान हो जाये ।

२१- सीखने के नियम तथा सिद्धान्त-

- क- सीखने के समय शारीरिक परिवर्तनों की प्रवृत्ति का वर्णन करते हैं ।
- ख- सीखने में आयी बाधाओं एवं सहायताओं के प्रभाव का वर्णन करते हैं ।
- ग- सभी सीखने की परिस्थितियों में समान रूप से प्रभावशाली होते हैं ।
- घ- निम्न जानवरों (Lower Animals) की सीखने की प्रक्रिया पर लागू वहीं होते ।
- ङ- केवल दक्षता या कौशलयुक्त चीजों के सीखने में सहायता देते हैं ।

२२- 'थोर्नडाइक' का सबसे महत्वपूर्ण सीखने का नियम है-

- क- साहचर्य का नियम (Law of Association)
- ख- प्रभाव का नियम (Law of effect)
- ग- अभ्यास का नियम (Law of exercise)
- घ- चयनित प्रत्यक्षीकरण का नियम (Law of selective perception)
- ङ- इनमें से कोई भी नहीं ।

२३- प्रभाव के नियम (Law of effect) का तात्पर्य है कि-

- क- गलत उत्तरों के लिये दंड अवश्य दिया जाये ।
- ख- सही उत्तरों के लिये पुरस्कार अवश्य दिया जाये ।
- ग- आदमी सदैव भूल एवं प्रयास द्वारा सीखता है ।
- घ- बालक का सीखना उसको मिलने वाले संतोष या असंतोष पर निर्भर है ।
- ङ- बालक के सामने सदैव स्पष्ट उत्प्रेरक तथा लक्ष्य होना चाहिये ।

२४- आधुनिक मनोवैज्ञानिकों की दृष्टि में अभ्यास का नियम (Law of exercise) -

क- केवल शारीरिक शिक्षा के क्षेत्र में ही उपयोगी है ।

ख- जब तक निपुणता न मिले तभी तक उपयोगी है ।

ग- सबसे अधिक महत्वपूर्ण प्राथमिक सीखने का नियम है ।

घ- 'अभ्यास मानव को पूर्ण बनाता है' तथ्य पर विशेष जोर देता है ।

ङ- उपर्युक्त सभी बातें गलत हैं ।

२५- प्राथमिक रूप से अधिगम की सफलता (Successful Learning) निर्भर है-

क- रुचि तथा परिपक्वता पर ।

ख- तत्परता तथा प्रभावशील अभ्यास पर ।

ग- अभ्यास तथा प्रशिक्षण पर ।

घ- उत्प्रेरणा एवं प्रभावशील अध्ययन-विधि पर ।

ङ- उपर्युक्त में से किसी पर भी नहीं ।

२६- मानव, पशु की अपेक्षा भूल प्रयास विधि द्वारा सीखने में किस तत्त्व पर अधिक महत्व देता है-

क- अधिकतम क्रिया पर (Overt Activity)

ख- शीघ्र एवं स्वस्थ क्रिया पर ।

ग- प्रतीकात्मक क्रिया पर । (Symbolic manipulation)

घ- प्रत्येक समस्या की अद्वितीयता पर । (Uniqueness)

ङ- सूझ पर । (Insight)

२७- सम्बद्ध प्रत्यावर्तित सिद्धान्त (Conditioning Theory) का प्रादुर्भाव हुआ है-

क- कोहलर के प्रयोगों के आधार पर ।

ख- मैक्डूगल के प्रयोगों के आधार पर ।

ग- पैवलोव तथा वाटसन के प्रयोगों के आधार पर ।

घ- थोर्नडाइक के प्रयोगों के आधार पर ।

ङ- अरस्तू तथा वॉटसन के प्रयोगों के आधार पर ।

२८- सूझ का सिद्धान्त (Theory of Insight)-

क- उत्प्रेरणा को महत्वपूर्ण स्थान देता है ।

ख- स्थानान्तरण को महत्वपूर्ण स्थान देता है ।

ग- रटने की अपेक्षा सूझ पर ध्यान देता है ।

घ- आविष्कार तथा खोजों में महत्वपूर्ण है ।

ङ- ये सभी बातें गलत हैं ।

२९- गैस्टाल्ट मनोवैज्ञानिकों के अनुसार बालक-

क- प्रत्येक उत्तेजना के लिये अलग अलग उत्तर देता है ।

ख- प्रत्येक उत्तेजना का सम्पूर्ण विश्लेषण करके उत्तर देता है ।

ग- उत्तेजनाओं को अर्थपूर्ण-प्रतिदर्शों (Meaningfull Patterns) में संगठित करके उत्तर देता है ।

घ- भूल प्रयास द्वारा उत्तर निकालता है ।

ङ- सम्बन्ध स्थापित करके उत्तर खोज लेता है ।

(छः)

३०- भूल-प्रयास के सिद्धान्त के विविष्ट नियम हैं-

- क- तत्परता, अभ्यास तथा प्रभाव के नियम ।
- ख- समानता तथा समीपता के नियम ।
- ग- अभ्यास तथा समीपता के नियम ।
- घ- समानता तथा प्रभावशीलता का नियम ।
- ङ- अभ्यास, तत्परता तथा समानता का नियम ।

३१- भूल तथा प्रयास द्वारा सीखने का सिद्धान्त ही-

- क- आदतों के निर्माण का आधार है ।
- ख- आविष्कारों में सुधार करता है ।
- ग- कक्षा में अभ्यास द्वारा पूर्णता प्राप्त करने पर जोर देता है ।
- घ- प्रायोगिक प्रमाणीकरण (Experimental Verification) पर जोर देता है ।
- ङ- ये सभी बातें सही हैं ।

३२- कौन से दो पद समान प्रवृत्ति किन्तु भिन्न विधियों तथा परिणामों वाले हैं-

- क- चिन्तन तथा अधिगम ।
- ख- चिन्तन तथा सृजनशील विचार ।
- ग- चिन्तन तथा परिपक्वता ।
- घ- चिन्तन तथा समस्या समाधान ।
- ङ- उपर्युक्त में से कोई भी नहीं ।

३३- सबसे अधिक व्यवस्थित (Orderly) सोचने की प्रक्रिया है-

- क- विचार करना ।
- ख- समस्या का समाधान करना ।
- ग- सीखना ।
- घ- चिन्तन करना ।
- ङ- सृजनशील विचार करना ।

३४- चिन्तन एक प्रकार का-

- क- निरीक्षित साहचर्य (Controlled Association) है ।
- ख- समस्या समाधान का रूप है ।
- ग- भूल-प्रयास विधि से सीखना है ।
- घ- मनोवैज्ञानिक अभ्रम है ।
- ङ- प्रात्यक्षिक अधिगम है ।

३५- चिन्तन की विशेषता है कि-

- क- यह समस्या समाधान की प्रक्रिया में सूझ के प्रादुर्भाव के लिये सूचना के रूप में कार्य करता है ।
- ख- यह समस्या-समाधान के उद्देश्य पर निर्भर है ।
- ग- यह समस्या-समाधान में विचार करने का एक उपकरण है ।
- घ- यह सिद्धान्तात्मक (Deductive) तथा परिणामात्मक (Inductive) दोनों प्रकार का हो सकता है ।
- ङ- ये सभी चिन्तन की विशेषताएँ हैं ।

३६- चिन्तन पर कौन सी बात लागू नहीं होती-

क- यह उत्पादक विचार (Productive Thinking) है ।

ख- सृजनशील (Creative Thinking) होती है ।

ग- विभिन्न व्यक्तियों में विभिन्न प्रकार की चिन्तन योग्यता होती है ।

घ- चिन्तन-योग्यता मानव में क्रमशः विकसित होती है ।

ङ- चिन्तन तथा समस्या-समाधान की प्रक्रियाओं में कोई अंतर नहीं है ।

३७- कौन सा चरण चिन्तन प्रक्रिया का प्राथमिक चरण नहीं है ?

क- समस्या के विषय में चेतनता प्राप्त करना ।

ख- सूचनार्ये एकत्रित करना तथा उनका भूतयांकित एवं संगठन करना ।

ग- परिवर्तन का निर्माण एवं परीक्षण करना ।

घ- सामान्यीकरण करना ।

ङ- प्रत्येक चरण चिन्तन प्रक्रिया का प्राथमिक चरण है ।

३८- चिन्तन प्रक्रिया के विकास से सम्बन्धित सबसे कम ग्रहणीय विचार है कि-

क- चिन्तन परिपक्वता की प्रक्रिया में सबसे अन्त में विकसित होने वाली क्रिया है ।

ख- बालकों तथा बड़ों के चिन्तन की समान सीमायें हैं ।

ग- चिन्तन तथा वाद भण्डार का स्पष्ट तथा प्रत्यक्ष-सम्बन्ध है ।

घ- चिन्तन बालकों की सीमित मानसिक योग्यताओं एवं अनुभवों के कारण अल्प विकसित होता है ।

ङ- उपर्युक्त सभी विचार समाप्त रूप में ग्रहणीय हैं ।

३९- चिन्तन में सबसे महत्वपूर्ण है-

क- समस्या ।

ख- परिणाम ।

ग- क्षेत्र ।

घ- विधि ।

ङ- परिणतपना ।

४०- प्रौढ व्यक्तियों का चिन्तन किशोरों की अपेक्षा अधिक उत्तम होता है, क्योंकि-

क- बड़ों में बुद्धि अधिक होती है ।

ख- बड़ों के सोचने में अधिक वस्तुनिष्ठता होती है ।

ग- बड़े अपनी चिन्तन प्रक्रिया को प्रतीकात्मक रूप (Symbolized) देने में समर्थ हैं ।

घ- बड़े सवेगात्मक बाधाओं तथा पूर्वाग्रहों से हटकर सोचते हैं ।

ङ- बड़ों की चिन्तन प्रक्रिया अधिक वैज्ञानिक होती है ।

४१- चिन्तन से सम्बन्धित सही तथ्य है कि-

क- चिन्तन परिपक्वता से प्रभावित होता है ।

ख- चिन्तन पूर्व प्राप्त अनुभवों से प्रभावित होता है ।

ग- चिन्तन एकत्रित आँकड़ों तथा साक्ष्यों से प्रभावित होता है ।

घ- चिन्तन में बुद्धि का भी उपयोग करना पड़ता है ।

ङ- उपर्युक्त सभी तथ्य सही हैं ।

४२- चिन्तन की प्रक्रिया किससे प्रभावित नहीं होती-

क- अज्ञित ज्ञान से ।

ख- व्यापक से ।

ग- कल्पना शक्ति से ।

घ- मूल्यों से ।

ङ- इन में से किसी एक से नहीं बरन् सभी से ।

४३- कौन सा चरण सृजकशील विचार की प्रक्रिया (Process of creative Thinking) का नहीं है-

क- तत्परता (Readiness)

ख- सामान्यीकरण (Generalization)

ग- इनक्यूबेशन (Incubation)

घ- इल्यूमिनेशन (Illumination)

ङ- प्रमाणीकरण (Verification)

४४- मानवीय चिन्तन, पशु चिन्तन की अपेक्षा अधिक-

क- अमूर्त होता है ।

ख- लक्ष्य की ओर केंद्रित रहता है ।

ग- भूल-प्रयास युक्त होता है ।

घ- सरल होता है ।

ङ- उत्प्रेरणा युक्त होता है ।

४५- सिद्धान्तात्मक चिन्तन (Deductive Reasoning)-

क- सामान्यीकरण से विशिष्टीकरण के लिये की गयी चिन्तन की प्रक्रिया है ।

ख- वैज्ञानिक विधि का केवल एक मात्र आधार है ।

ग- ज्ञान वृद्धि में उपादेय है पर नवीन खोजों में नहीं ।

घ- परिणामात्मक चिन्तन (Inductive Reasoning) से अधिक सूक्ष्म (Precise) होती है ।

ङ- तर्कशास्त्र तथा गणित में सबसे कम उपयोगी है ।

४६- कौनसी बात सही है-

क- चिन्तन तथा समस्या समाधान पर्यायवाची हैं ।

ख- चिन्तन तथा समस्या समाधान दो विपरीत ध्रुव हैं ।

ग- चिन्तन तथा समस्या समाधान सामान्य रूप से विचार करने की उच्च प्रक्रियाएँ हैं ।

घ- चिन्तन तथा समस्या समाधान की योग्यता पशुओं में बिल्कुल ही नहीं होती ।

ङ- उपर्युक्त सभी गलत हैं ।

४७- समस्या-समाधान की प्रक्रिया में सबसे महत्वपूर्ण है-

क- समस्या अनुभव करना ।

ख- परिकल्पना बनाना ।

ग- परिकल्पना का परीक्षण ।

घ- सामान्यीकरण ।

ङ- अपने अपने स्थान पर सभी महत्वपूर्ण हैं ।

(नौ)

४८- समस्या-समाधान-विधि का प्रथम चरण है—

क- अध्ययन हेतु सामग्री का चयन ।

ख- समस्या की खोज ।

ग- परीक्षण के लिये परिकल्पना का निर्माण ।

घ- अस्थायी समाधान की खोज ।

ङ- उपर्युक्त में से कोई भी नहीं ।

४९- सर्वाधिक सही तथ्य है—

क- समस्या-समाधान की प्रक्रिया एक निश्चित लक्ष्य की ओर अभिसरित होती है ।

ख- समस्या-समाधान में चयन की प्रक्रिया भी निहित होती है ।

ग- समस्या-समाधान प्रक्रिया सूक्ष्म बूझ से युक्त होती है ।

घ- समस्या-समाधान प्रक्रिया सृजनशील प्रवृत्ति की भी होती है ।

ङ- ये सभी बातें समान रूप से सही हैं ।

५०- किशोरों में समस्या-समाधान विधि की प्रभावशीलता के लिये—

क- पाठ्य पुस्तकों में समाधान खोजने के लिये उन्हें प्रोत्साहित करना चाहिये ।

ख- दूसरी समस्याओं के आदर्श-समाधान उनके चिन्तन हेतु प्रस्तुत करने चाहिये ।

ग- उन्हें सुव्यवस्थित रूप से सोचने के विभिन्न सोपानों का ज्ञान देना चाहिये ।

घ- उन्हें समाधान खोजने के लिये सहायक पुस्तकों पढ़ने के लिये प्रेरित करना चाहिये ।

ङ- उपर्युक्त विधियों में से किसी का भी प्रयोग वांछित नहीं है ।

५१- समस्या पर विचार करना कुछ समय के लिये धन्य कर देना चाहिये, जबकि—

क- थकान आने लगे ।

ख- समस्या कठिन हो ।

ग- समस्या के बारे में स्पष्ट ज्ञान हो ।

घ- उचित प्रयास भी सही समाधान न दे ।

ङ- गलत धारणायें सोचने का आधार हों ।

५२- समस्या-समाधान की प्रभावशीलता में वृद्धि के लिये आवश्यक है कि—

क- समस्या से सम्बन्धित सभी तथ्य सुव्यवस्थित रूप से प्रस्तुत किये जायें ।

ख- कुछ अंशों तक भूल तथा प्रयास की प्रक्रिया अपनाई जाये ।

ग- कुछ अंशों तक सोचने के लिये निर्देशन दिया जाये ।

घ- समस्या से सम्बन्धित सभी तथ्य तथा समाधान सोचने वाले के स्तरानुकूल हों ।

ङ- उपर्युक्त में से कोई भी प्रक्रिया प्रभावशीलता बढ़ाने में अभ्यर्थ है ।

५३- छात्रों में समस्या-समाधान की प्रक्रिया विकसित करने के लिये सबसे उत्तम विधि है—

क- पेट (Pet) उत्तरों को स्वीकार करने या पेट (Pet) उत्तर देने से इन्कार करना ।

ख- बालकों की आलोचनात्मक अभिवृत्ति उत्तेजित करना ।

ग- बालकों की वास्तविक समस्याओं पर अधिक जोर देना ।

घ- सामान्य चिन्तन विधियों का ज्ञान प्रदान करना ।

ङ- उन्हें उत्तेजक तथा उत्तर (Stimulus & Response) से सम्बन्ध स्थापित करना सिखाना ।

५४- बालक को किसी विषय का स्पष्ट ज्ञान तभी प्राप्त होगा जबकि-

- क- वह बोल-बोलकर पाठ को दोहराये ।
- ख- उसके उदाहरणों को भली-भाँति समझे ।
- ग- नयी समस्याओं के समाधान करने में ज्ञान का उपयोग करना सीखे ।
- घ- दुबारा पढ़ने पर उसे विषय वस्तु समझी हुयी लगे ।
- ङ- विविष्ट वस्तुनिष्ठ प्रश्नों के उत्तर देने में वह समर्थ हो जाये ।

५५- सीखने की प्रक्रिया में सबसे प्रथम महत्वपूर्ण चरण है-

- क- परिणाम पर विचार ।
- ख- उद्देश्य-निर्धारण करना ।
- ग- सीखने की विभिन्न परिस्थितियों का विवेचन करना ।
- घ- सीखने में प्रयुक्त विभिन्न क्रियाओं की सुव्यवस्था पर विचार करना ।
- ङ- इनमें कोई भी महत्वपूर्ण चरण नहीं है ।

५६- बालक को तत्परता अधिकतर निर्भर है-

- क- उसकी आयु पर ।
- ख- उसकी कक्षा पर ।
- ग- उसकी मानसिक व शारीरिक परिपक्वता पर ।
- घ- बालक की चिन्ताओं तथा तनावों पर ।
- ङ- बालक के शिक्षक पर ।

५७- तत्परता पर किसका प्रभाव नहीं पड़ता-

- क- भौतिक सुविधाएँ ।
- ख- वशानुक्रम ।
- ग- मानसिक व शारीरिक थकान ।
- घ- मानसिक व शारीरिक परिपक्वता ।
- ङ- पूर्व अनुभव तथा संवेगात्मक बाधाएँ ।

५८- जैविक तथ्यो (Biological factors) का प्रभाव-

- क- जैविक वृद्धि पर पड़ता है ।
- ख- वातावरण में सामंजस्य स्थापित करने पर पड़ता है ।
- ग- व्यक्ति की व्यक्तिगत सीखने की क्षति पर पड़ता है ।
- घ- व्यक्ति के सामाजिक संवेगात्मक उत्तरों पर पड़ता है ।
- ङ- व्यक्ति के इन सभी तथ्यों पर पड़ता है ।

५९- बालकों की महात्वाकांक्षा का स्तर(Level of Aspiration)ज्ञान करने के लिये हमें चाहिये कि हम-

- क- उसकी सीखने के प्रति अभिवृत्ति के बारे में ज्ञान प्राप्त करें ।
- ख- उसके द्वारा स्वयं-निर्धारित उद्देश्यों के विषय में जानकारी रखें ।
- ग- उसकी सफलता की आशा के स्वप्नों पर विचार करें ।
- घ- उसके गत अनुभवों के आधार पर सफलता की आशा रखें ।
- ङ- उसकी सीखने की क्रिया के प्रति सहयोग के बारे में ज्ञान प्राप्त करें ।

(रघारह)

६०- शिक्षक का बालकों के प्रति सबसे महान् दायित्व है-

क- बालक के उत्प्रेरकों को समझना ।

ख- उनके व्यवहारों के आंतरिक एवं बाह्य कारणों को जानना ।

ग- उनके उत्प्रेरकों का उपयोग तथा उसका निर्माण करना ।

घ- उनके वशानुक्रम का विश्लेषण करना ।

ङ- उनके वातावरण में व्यवहार पर प्रभावशील तत्वों का विश्लेषण करना ।

६१- आवश्यकता का सिद्धान्त (Need Reduction Theory)-

क- पशु व्यवहार को पूर्णरूप से समझाती है ।

ख- मानव की प्राथमिक आवश्यकता सम्बन्धी सभी रूपों पर प्रकाश डालती है ।

ग- पशु तथा मानव दोनों के व्यवहारों के प्रमुख कारणों को समझाती है ।

घ- मानव व्यवहार के गौण कारणों को बताती है ।

ङ- मानव तथा पशु व्यवहार को आशिक रूप से समझाती है ।

६२- शिक्षक का कार्य है कि वह-

क- बालक को उसकी आवश्यकताओं के बारे में ज्ञान दे ।

ख- बालक की अपनी आवश्यकताओं को वांछित ढंग से पूर्ण करने की विधि बताये ।

ग- बालक की सभी आवश्यकतायें पूर्ण करे ।

घ- बालक को आवश्यकतायें ही अनुभव न होने दे ।

ङ- इन सभी कार्यों को करे ।

६३- मानव-व्यवहार किससे उत्प्रेरित होता है ?

क- सदैव ज्ञात कारणों से ।

ख- कभी-कभी अज्ञात कारणों से ।

ग- सदैव किसी न किसी कारण से ।

घ- केवल बाह्य कारणों से ।

ङ- मानव व्यवहार उत्प्रेरणा पर निर्भर नहीं है ।

६४- शिक्षक को चाहिए कि वह बालकों के-

क- बाह्य व्यवहारों पर विशेष ध्यान दे ।

ख- व्यवहारों के लक्षणों को ही मूल कारण मानकर कार्य करे ।

ग- लक्षणों को ही उनके व्यवहार का मूल कारण न समझे ।

घ- केवल आन्तरिक व्यवहारों पर ध्यान दे ।

ङ- उपर्युक्त सभी तथ्यों पर ध्यान दे ।

६५- विम्बांकित में से कौन सा उत्प्रेरक बाह्य उत्प्रेरक नहीं है ?

क- आकर्षक पाठ्य पुस्तक ।

ख- सबीन शिक्षण विधि ।

ग- उपयुक्त वातावरण ।

घ- सीखने की विधि ।

ङ- शिक्षक का सहानुभूतिपूर्ण व्यवहार ।

(बारह)

६६- कक्षा में शिक्षक को—

- क- बालकों को पीटकर कभी भी कार्य नहीं कराना चाहिये ।
- ख- पुरस्कार-उत्प्रेरक का प्रयोग सदैव करना चाहिये ।
- ग- दण्ड तथा पुरस्कार का प्रयोग आवश्यकतानुसार करना चाहिये ।
- घ- दण्ड तथा पुरस्कार का प्रयोग प्रत्येक परिस्थिति में करना चाहिये ।
- ङ.- दण्ड तथा पुरस्कार का उपयोग करना ही नहीं चाहिये ।

६७- प्रतियोगिता का कक्षा में प्रयोग—

- क- कभी भी नहीं करना चाहिये क्योंकि इससे राग द्वेष बढ़ता है ।
- ख- सदैव करना चाहिये क्योंकि यह प्रगति की ओर अग्रसित करता है ।
- ग- स्वयं प्रतियोगिता (Self-Competition) के रूप में ही होना चाहिये ।
- घ- केवल क्रीडा क्षेत्र में ही करना चाहिये ।
- ङ.- दूसरों पर अपना प्रभाव डालने के लिये करना चाहिये ।

६८- निम्नांकित तत्वों में से कौनसा तत्व उत्प्रेरणा का नहीं है—

- क- रुचि ।
- ख- प्रोत्साहन (Incentive)
- ग- बुद्धि ।
- घ- आवश्यकता ।
- ङ.- लक्ष्य तथा उद्देश्य ।

६९- उत्प्रेरणा का कार्य है—

- क- किसी कार्य को करने की इच्छा उत्पन्न करना ।
- ख- जहाँ रुचि की अनुभूति न हो वहाँ, रुचि की अनुभूति कराना ।
- ग- बालकों को अधिकाधिक जिज्ञासु बनाना ।
- घ- जहाँ रुचि न हो वहाँ रुचि उत्पन्न करना ।
- ङ - उपर्युक्त सभी काम पूरे करना ।

७०- उत्प्रेरणा पर कौनसा तथ्य लागू नहीं होता है ?

- क- यह व्यवहार को शक्ति देती है । (Energizes)
- ख- लक्ष्य प्राप्ति के पश्चात् संतोष देती है ।
- ग- लक्ष्य की ओर अग्रसित करती है ।
- घ- अधिक सीखने के लिये प्रेरित करती है ।
- ङ.- इनमें से कोई भी तथ्य लागू नहीं होता ।

७१- यदि बालक कोई वस्तु सीखता है तो हम कह सकते हैं कि उसमें—

- क- बाह्य उत्प्रेरणा अवश्य थी ।
- ख- चेतन उत्प्रेरणा अवश्य थी ।
- ग- अचेतन उत्प्रेरणा अवश्य थी ।
- घ- किसी न किसी प्रकार की उत्प्रेरणा अवश्य थी ।
- ङ.- आवश्यक नहीं है कि उत्प्रेरणा अवश्य थी ।

(तेरह)

७२- बोध से ज्ञात हुआ है कि विद्यालय की पढाई में-

क- चेतन उत्प्रेरक सदैव आवश्यक है ।

ख- उत्प्रेरणा में वृद्धि प्रभावशील-शिक्षा की प्रतीक है ।

ग- क्रीडा क्षेत्र को छोड़ कर सभी में उत्प्रेरणा का सामान्य महत्व है ।

घ- थकान युक्त कार्यों में उत्प्रेरणा प्रभाव हीन है ।

ङ.- उत्प्रेरणा का कोई स्थान नहीं है ।

७३- उत्प्रेरक के लिये सबसे कम गृहणीय वाक्य है-

क- उत्प्रेरक बालक के व्यवहार की एक अवस्था है जो बालक का पथ प्रदर्शन करती है ।

ख- उत्प्रेरक सदैव बालकों में उपस्थित रहते हैं ।

ग- अनुभवों के आधार पर उत्प्रेरकों का विकास सम्भव है ।

घ- सभी बालकों में उत्प्रेरक शक्ति समान होती है ।

ङ.- बालक की प्रवृत्तियाँ तथा आदतें सामान्य उत्प्रेरकों को जन्म देती हैं ।

७४- उत्प्रेरकों के क्षेत्र में शिक्षक का दायित्व है कि वह-

क- बालकों में आवश्यकता उत्पन्न करे ।

ख- बालकों की रुचियों में सुधार करे ।

ग- बालकों की रचनात्मक कार्यों की ओर अग्रसर होने की प्रेरणा दे ।

घ- बालकों के समक्ष नवीन तथा आकर्षक उत्प्रेरक रखे ।

ङ.- उपर्युक्त सभी प्रकार के दायित्वों को निभाये ।

७५- बालकों के उत्प्रेरक सर्वाधिक निर्भर हैं-

क- आयु पर ।

ख- बुद्धि पर ।

ग- अनुभवों पर ।

घ- अवसरों के मिलने पर ।

ङ.- लिंग के आधार पर ।

७६- छात्रों के परीक्षा में फेल होने का प्रमुख कारण है-

क- अपर्याप्त सामान्य बुद्धि ।

ख- अपर्याप्त उत्प्रेरणा ।

ग- अपर्याप्त ज्ञान तथा कौशल ।

घ- उचित अध्ययन विधियों का अभाव ।

ङ.- शैक्षणिक उपकरणों का अभाव ।

७७- निम्नांकित दृष्टिकोणों में से कौन-सा दृष्टिकोण सर्वाधिक सही है-

क- मानव ईश्वर के हाथ का खिलौना है ।

ख- मानव अपने भविष्य का स्वयं निर्माण करता है ।

ग- मानव एक मशीन है ।

घ- मानव एक सामाजिक पशु है ।

ङ.- मानव रीति रिवाज तथा सस्कृति के अनुसार बनता है ।

(चौबह)

७६- बालक जब उत्प्रेरित होता है तब वह—

- क- कार्य करने के लिये अपनी उत्सुकता दिखाता है ।
- ख- लक्ष्य प्राप्ति के लिये कठिन से कठिन कार्य करवा चाहता है ।
- ग- अपना कार्य करने में पूरी शक्ति लगाकर संतोष का अनुभव करता है ।
- घ- अपनी असफलताओं से भी प्रेरणा पाकर प्रयत्न करता है ।
- ङ - उपर्युक्त चारों प्रकार की अवस्थाये सम्भव है ।

७९- कक्षा में उत्प्रेरणा पर किस का प्रभाव नहीं पड़ता है ?

- क- आवश्यकताओं का ।
- ख- प्रवृत्तियों तथा संवेगात्मक तथ्यों का ।
- ग- पुरस्कार तथा दण्ड का ।
- घ- रुचियों एवं अभिरुचियों का ।
- ङ.- सभी का प्रभाव पड़ सकता है ।

८०- नवीन पाठ प्रारम्भ करने से पूर्व शिक्षक को चाहिये कि वह—

- क- पाठ का सारांश पहिले बता दे ।
- ख- पाठ के मुख्य बिन्दुओं पर प्रकाश डाले ।
- ग- बालकों की रुचियों को ध्यान में रखते हुये पाठ विकसित करे ।
- घ- बालकों में नवीन ज्ञान प्राप्त करने की इच्छा जागृत करे ।
- ङ - विषयवस्तु को व्यवस्थित रूप में प्रस्तुत करे ।

८१- प्रतिभावान छात्रों को प्रेरित करने में सबसे कम प्रभावशाली उपाय है—

- क- उनकी रुचियों के अनुसार अध्ययन के लिये प्रोत्साहन देना ।
- ख- वांछित प्रकार के कार्य (Assignments) देना ।
- ग- अनिश्चित साहित्य पढ़ने के लिये प्रोत्साहित करना ।
- घ- अगली कक्षा में चढ़ा देना (Double Promotion) ।
- ङ.- स्कूल के बाद रोक कर उनसे कार्य कराना ।

८२- सीखने की प्रक्रिया पर किसका प्रभाव नहीं पड़ता—

- क- अनुकरण का ।
- ख- सुझाव का ।
- ग- पूर्वाग्रहों का ।
- घ- आलोचना का ।
- ङ.- उपर्युक्त सभी का प्रभाव पड़ता है ।

८३- सीखने का स्थानान्तरण किसके द्वारा होता है—

- क- संकाय प्रशिक्षण द्वारा ।
- ख- सामान्यीकरण द्वारा ।
- ग- उत्तम शिक्षण विधियों द्वारा ।
- घ- ज्ञानेन्द्रियों के प्रशिक्षण द्वारा ।
- ङ.- स्थानान्तरण सम्भव ही नहीं है ।

८४- स्थानान्तरण की प्रक्रिया सर्वाधिक महत्वपूर्ण है-

क- पाठ्यक्रम बनाने वालों के लिये ।

ख- शिक्षा के उद्देश्य निर्धारित करने वालों के लिये ।

ग- शिक्षा की विधियाँ निकालने वालों के लिये ।

घ- इनमें से प्रत्येक के लिये ।

ङ- इनमें से किसी के लिए नहीं ।

८५- स्थानान्तरण सम्बन्धी निम्नांकित कौन सा उत्तर अधिक सही है ?

क- एक परिस्थिति में प्राप्त अनुभवों का लाभ दूसरी सामान्य परिस्थिति में होता है ।

ख- स्थानान्तरण सामान्यीकरण की प्रक्रिया पर निर्भर होता है ।

ग- विभिन्न व्यक्तियों की स्थानान्तरण-गति भिन्न होती है ।

घ- ये तीनों ही सही उत्तर हैं ।

ङ- ये तीनों ही गलत उत्तर हैं ।

८६- स्थानान्तरण का प्रक्रम निम्न में से किस प्रकार का होता है ?

क- सर्वदैव निषेधात्मक (Negative) होता है ।

ख- सर्वदैव घनात्मक (Positive) होता है ।

ग- कभी घनात्मक और कभी निषेधात्मक होता है ।

घ- विद्यालय की परिस्थितियों में नहीं होता है ।

ङ- इनमें से किसी प्रकार का नहीं ।

८७- निम्नांकित किन वस्तुओं का स्थानान्तरण सम्भव नहीं है-

क- आदतों एवं अभिवृत्तियों का ।

ख- ध्यान तथा अनुभूति का ।

ग- ज्ञान एवं दक्षता का ।

घ- सोचने तथा चिन्तन करने का ।

ङ- जन्मजात गुणों का ।

८८- स्थानान्तरण किस तथ्य पर अधिक निर्भर रहता है ?

क- अनुभवों के अर्थ तथा उनके सामान्यीकरण पर ।

ख- बालक के बौद्धिक स्तर पर ।

ग- सीखने वाली विषय वस्तु की प्रकृति पर ।

घ- सिखाने की विधि पर ।

ङ- बालक की अभिवृत्ति पर ।

८९- शिक्षा में स्थानान्तरण के लिए शिक्षक को किस पर ध्यान देना चाहिए ?

क- मस्तिष्क की विभिन्न शक्तियों के प्रशिक्षण पर ।

ख- सामान्यीकरण पर जोर डालने वाली विधियों के प्रयोग पर ।

ग- पाठ्यक्रम के असमान अंशों को छोड़ने पर ।

घ- रटने की प्रक्रिया पर ।

ङ- उपर्युक्त में से किसी पर भी नहीं ।

(सोलह)

६०- स्थावान्तरण की व्याख्या गैस्टाल्ट मनोवैज्ञानिक किस आधार पर करते हैं-

- क- सामान्यीकरण के आधार पर ।
- ख- समाज तत्वों के आधार पर ।
- ग- सूक्ष्म के आधार पर ।
- घ- मानसिक संकाय के आधार पर ।
- ङ- इनमें से किसी पर भी नहीं ।

६१- आधुनिक स्थानान्तरण के सिद्धान्तों के अनुसार कौन सी मान्यता सही है ?

- क- गणित मस्तिष्क को अनुशासित करती है ।
- ख- कला तथा अभिनय का स्थावान्तरण सम्भव नहीं है ।
- ग- स्थानान्तरण की गति, सीखने की विधि पर कुछ अशों तक निर्भर है ।
- घ- सारे विषय एक दूसरे में स्वतन्त्र हैं ।
- ङ- उपर्युक्त सभी मान्यताएँ गलत हैं ।

६२- शिक्षक को चाहिए कि वह-

- क- बालक को उसकी रुचियों का ज्ञान कराये ।
- ख- बालक की सभी रुचियों के बारे में सामग्री एकत्रित करे ।
- ग- बालक की रुचियाँ जानने का प्रयास करे ।
- घ- रुचियों के ज्ञान के आधार पर उनका पथ-प्रदर्शन करे ।
- ङ- रुचियों के विषय में ज्ञान प्राप्त कर हेडमास्टर को सूचित करे ।

६३- निम्नांकित बातों में से कौन सी बात अधिक तथ्यपूर्ण है ?

- क- लड़कों व लड़कियों की योग्यताएँ भिन्न नहीं होती ।
- ख- लड़के, लड़कियों की अपेक्षा अधिक बुद्धिमान होते हैं ।
- ग- लड़कियों की योग्यता, लड़कों से अधिक होती है ।
- घ- कुछ योग्यताओं में लड़के तथा कुछ में लड़कियाँ योग्य होती हैं ।
- ङ- लड़के व लड़कियाँ प्रत्येक प्रकार के विकास में भिन्नता युक्त हैं ।

६४- मानव में भिन्नताओं के कारण-

- क- वशानुक्रम है ।
- ख- वातावरण है ।
- ग- लिंग तथा परिपक्वता है ।
- घ- उपर्युक्त तीनों कारण हैं ।
- ङ- इनमें से कोई भी नहीं है ।

६५- व्यक्तित्व में विभिन्नता होती है-

- क- विभिन्न रुचियों व अभिरुचियों के कारण ।
- ख- विभिन्न उद्देश्यों तथा महात्वाकांक्षाओं के कारण ।
- ग- विभिन्न प्रवृत्तियों तथा शीलगुणों के कारण ।
- घ- विभिन्न संस्कृतियों के कारण ।
- ङ- उपर्युक्त सभी कारणों से ।

६६- कक्षा में शिक्षक को चाहिये कि वह-

- क- बालकों की व्यक्तिगत आवश्यकताओं के आधार पर ज्ञान दे ।
- ख- बालको को उनकी भिन्नताओं के विषय में ज्ञान दे ।
- ग- सभी बालको को एक ही विधि से पढ़ाये ।
- घ- सभी प्रकार के बालको को सामूहिक रूप से पढ़ाये ।
- ङ- इन सभी बातों का पालन करे ।

६७- निम्नांकित शिक्षा पद्धतियों में से कौन सी पद्धति व्यक्तिगत भिन्नताओं पर ध्यान नहीं देती ?

- क- विनेटिका योजना (Winetika Plan)
- ख- योजना विधि (Project Method)
- ग- प्रत्यक्ष शिक्षण विधि योजना (Direct Method)
- घ- डाल्टन योजना (Dalton Plan)
- ङ- मीरीसन योजना (Morrison Plan)

६८- जनतन्त्र में विभिन्नताओं पर अधिक ध्यान दिया जाता है क्योंकि-

- क- जनतन्त्र में सभी को समान स्वतन्त्रता है ।
- ख- सभी को अपनी योग्यतानुसार बढ़ने के लिए संधान आवश्यक है ।
- ग- सभी का दायित्व है कि वे मिलजुल कर देश का निष्पन्न करे ।
- घ- ये सभी गलत कारण हैं ।
- ङ- ये सभी सही तथ्य हैं ।

६९- उचित वातावरण (Optimul Environment)--

- क- व्यक्तिगत भिन्नतायें कम करता है ।
- ख- व्यक्तिगत भिन्नतायें बढ़ाता है ।
- ग- व्यक्तिगत भिन्नताओं पर प्रभाव नहीं डालता ।
- घ- केवल सामाजिक-संवेगात्मक विकास के अन्तर्गत् को प्रभावित करता है ।
- ङ- कुछ भिन्नतायें कम करता है तथा कुछ में वृद्धि करता है ।

१००- बालकों का कक्षा में वर्गीकरण करते समय किस पर अधिक ध्यान देना चाहिये-

- क- मानसिक योग्यता पर ।
- ख- शारीरिक अवस्था तथा उनकी आयु पर ।
- ग- संवेगात्मक प्रवृत्ति पर ।
- घ- सामाजिक वातावरण पर ।
- ङ- इन सभी पर ।

